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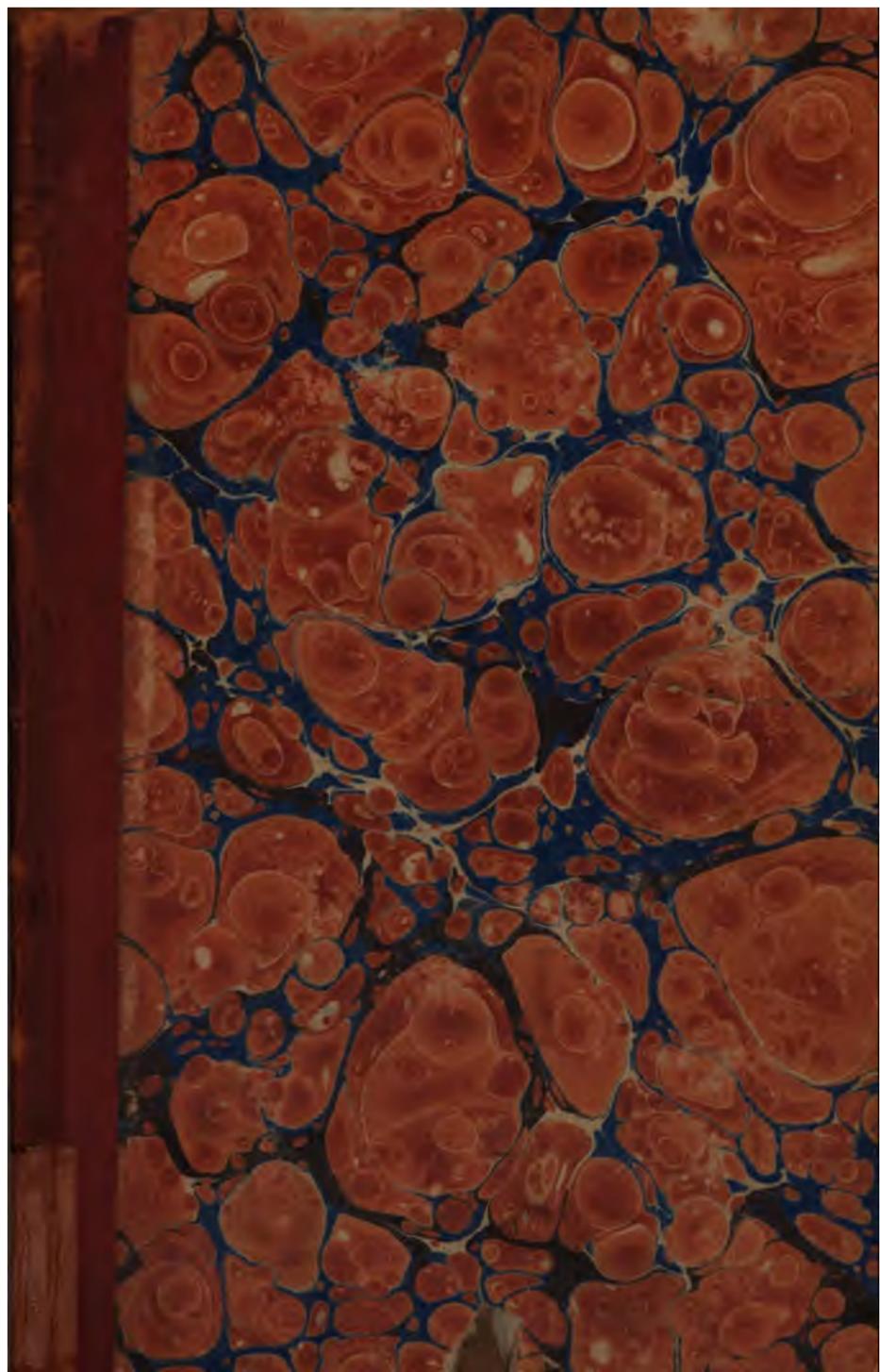
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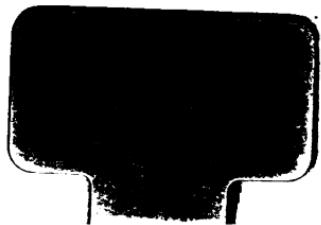
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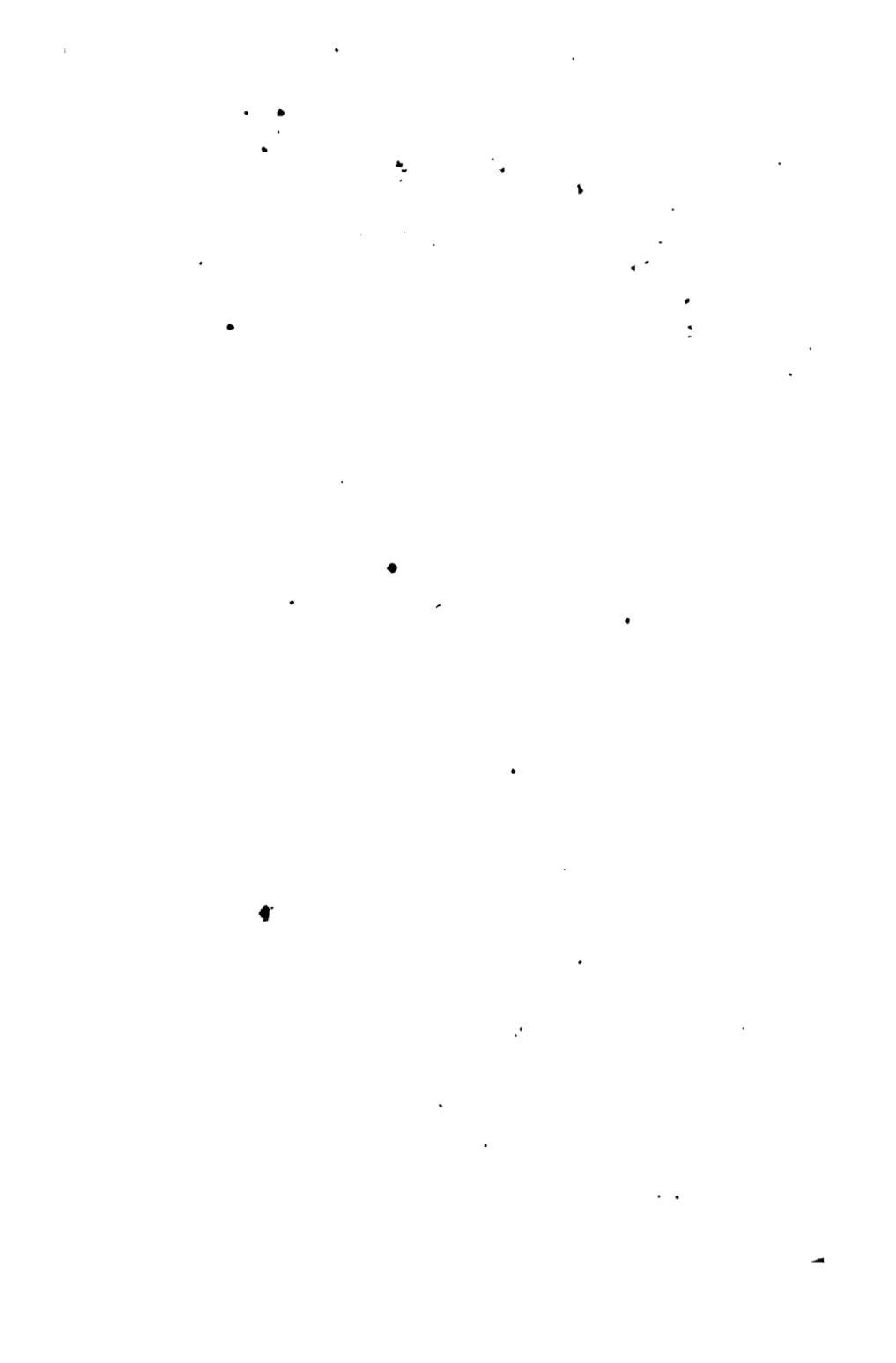
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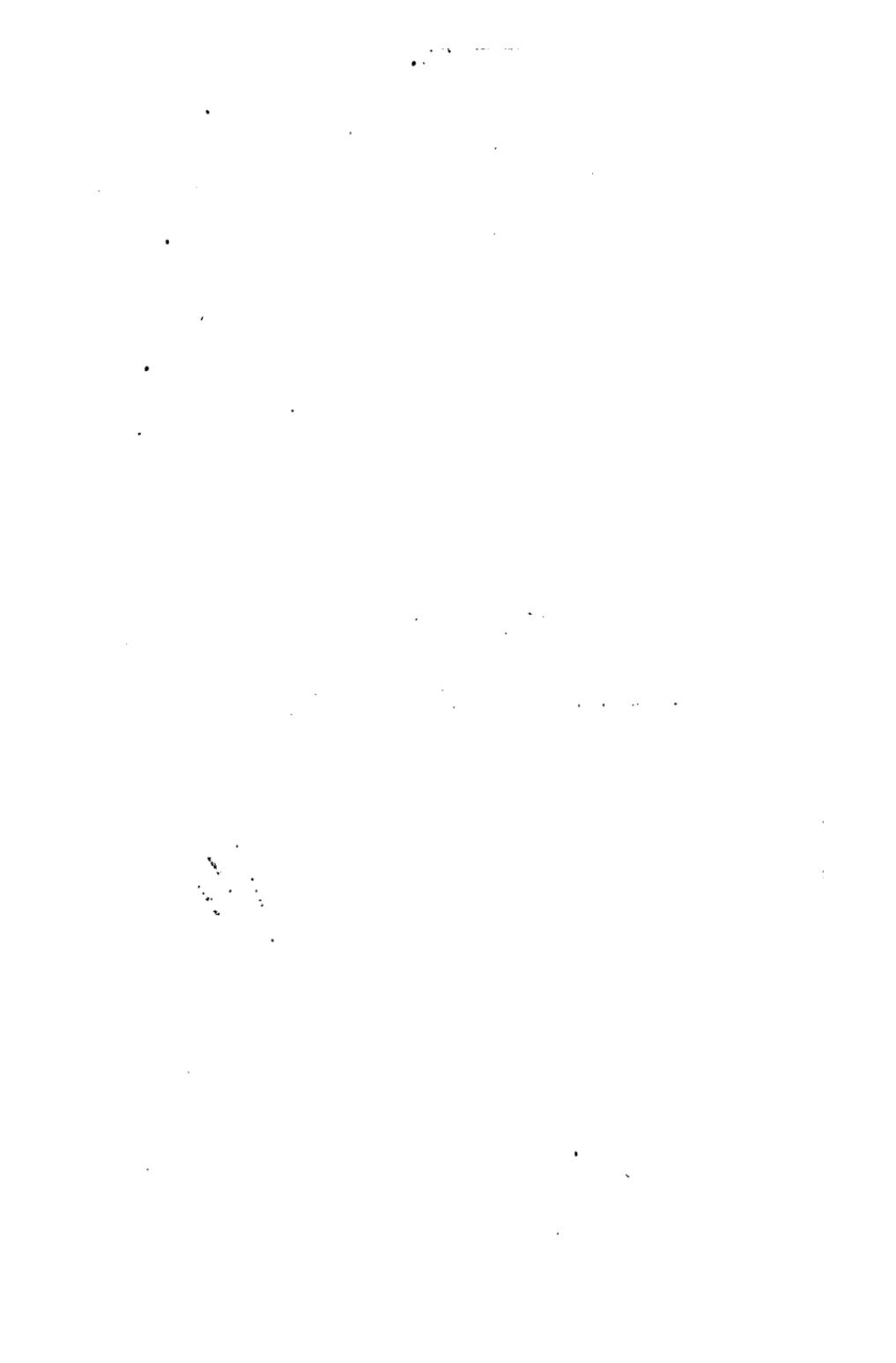








BATHS
OF
RHENISH GERMANY.



THE
B A T H S
OF
RHENISH GERMANY.

BY

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ACADEMIES AND SOCIETIES OF PARIS, BERLIN, LEIPZIG,
TURIN, FLORENCE, NAPLES, MADRID, THE MEDICAL
ASSOCIATION OF PRUSSIA, ETC.

Third Edition, Enlarged and Improved.

74

LONDON:
J. CHURCHILL, NEW BURLINGTON-STREET.
1856.

157. C. 164.

LONDON: PRINTED AT 121, FLEET STREET.

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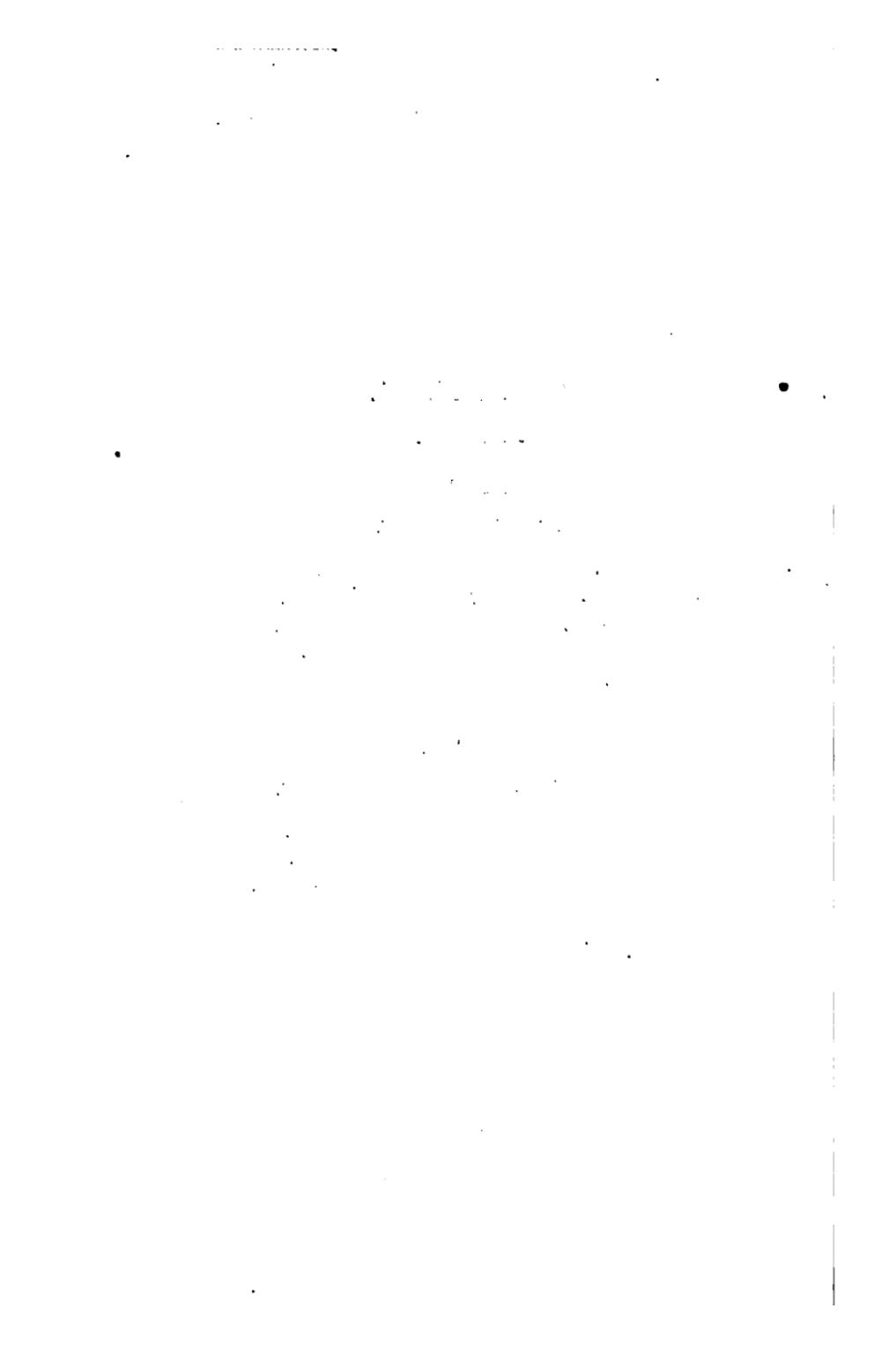
NASSAU BATHS.

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PREFACE.

IN order to accommodate those persons who might wish for an account of the baths near the Rhine, without being particularly interested in the other German and French baths, I deemed it advisable to publish this portion of my work separately. In the present edition, the notices of the towns near the baths have been omitted, as coming more especially within the province of the guide-books; and the accounts of the various places, while serving to convey a general idea of their peculiar features and characteristics, have reference more exclusively to the remedial application of the waters: on which point I have found no occasion to make any material alteration in the opinions which I formerly expressed; the general accuracy of the "Baths of Germany," which was admitted by the most competent authorities, being confirmed by my subsequent personal observation during the periods of my annual sojourn in the duchy of Nassau.

I have adverted to several of the local publications, quoting passages which might be useful in conveying information; but these works can seldom be considered as the best guides by which the practitioner may determine the choice of a spring in a given case, on account of the

glaring partialities and circumscribed views by which most of them are characterised. Now and then a reliable work, affording information of a practical kind, is published by a physician of experience ; but a large proportion of the productions of bath-physicians emanates from younger practitioners, as a means of bringing their names more prominently beneath the public eye, and for the most part do but repeat, in different language, what had previously been said by others upon the properties of the waters. As respects Ems, an important admission is now made by one or two of the resident physicians, that its waters, in cases of pulmonary disease, have been too indiscriminately praised ; which opinion I have long entertained, and have elsewhere expressed.*

52, Lower Belgrave-place, July, 1856.

* The writer of a notice on the works of Dr. Spengler, on Ems, and Dr. Eisenmann, on Friedrichshall (in the January number of the "British and Foreign Medical Review"), considers it a curious circumstance that the authors should think it desirable to publish their works in a foreign language. "We trust," he adds, "that it is not owing to a disregard for the power and beauty of the language of Fichte and Schiller." If the writer were more conversant with the state of foreign bath-literature, he would be aware that the majority of the *brochures* appearing in the German language are but little in request, and that the English and French versions are intended for circulation among the visitors who resort to the baths ; as also to make known the authors, as well as the waters themselves, to the public and physicians of Great Britain.

BATHS OF RHENISH GERMANY.

PART I.

NASSAU BATHS.

WIESBADEN.

THE Duchy of Nassau, though small, comprises a great variety of beautiful scenery ; while the fertility of its soil in many parts, its extensive woods and vineyards, producing some of the most esteemed wines, and its mineral springs, to which thousands annually resort for health, are never-failing sources of richness. The most beautiful parts are in the north, about Limburg, the banks of the Lahn, the Rheingau, and some of the valleys of the Taunus mountains. The air is light and bracing ; the inhabitants are generally healthy, industrious, and obliging ; the labouring classes hard-working and sober, intoxication being rarely met with. Education being compulsory, all are able to read and write. Begging is strictly prohibited.

No part of the world contains within so small a space so many valuable medicinal springs, differing in their nature, as this Duchy ; they rise, for the most part, at the foot of the Taunus range of hills, and are consequently but a short distance

from each other. Thus, within a drive of a few hours, one may pass the sulphur springs of Weilbach, the cold, saline ones of Soden, the acidulous and chalybeate of Kronthal, the hot saline of Wiesbaden, the warm of Schlangenbad, the chalybeate of Schwalbach, the hot alkaline of Ems, besides many others, either within the territory or in its neighbourhood, from some of which, as Selters, Fachingen, &c., the water is largely exported. Of these places, Wiesbaden claims the first notice, both on account of its being the capital, and also as one of the oldest and most frequented of the baths of Germany.

Wiesbaden is two miles and a half distant from the Rhine. Visitors arriving by the steamers land at Biberich, a small town, with two or three good hotels, near the river, and the summer residence of the Duke, whose chateau forms a conspicuous object on approaching. The extensive grounds, agreeably laid out in the English style, and intersected by a magnificent avenue of trees, are liberally open to pedestrians. From the intervening rising ground the valley of Wiesbaden presents itself, encircled by low hills covered with fruit trees and corn-fields, behind which on the north and north-east rises the range of the Taunus, the dark hue of its pine-woods strikingly contrasting with the lighter verdure of the meadows and the white buildings of the town.* On descending the hill the visitor's attention is first attracted by an

* Wiesbaden—Meadow-bath.

elegant stone edifice with gilded dome, situate on the acclivity of the Neroberg, the Greek chapel erected to the memory of the late Duchess ; he sees displayed before him a handsome range of houses, the Rhein-strasse terminated on the right by the railroad station and Düringer's Hotel, which likewise forms the termination of the fine avenue of planes fronting the Wilhelms-strasse, a third of a mile in length, and consisting for the most part of first-class lodging-houses. The most striking objects in this street are the museum and public library, and the Four Seasons Hotel, which constitutes the angle and side of a Place, the other two sides of which are occupied by the Maison Zais (an appendage to the hotel), the Hotel de Nassau, and the theatre; the Place fronts a spacious grass-plat, bordered on either side by flower plantations, avenues of lime-trees, and colonnades, beneath which are numerous shops for the sale of fancy articles, and terminated at the further extremity by the Cursaal, or public rooms for balls, *réunions*, play, reading, &c. The principal saloon, supported by columns of variegated marble, is handsomer than at any of the other German baths, and the smaller rooms are fitted up with great taste and elegance ; the reading-room, well supplied with English, French, and German journals, is free to visitors. The building likewise comprises rooms for dining and refreshments ; there are two *tables d'hôte* daily at one (sometimes in the large saloon ; on which occasions between two and three hundred people dine) and at four o'clock. Play is under the super-

intendence of the Government; high stakes are seldom played for as compared with those at Homburg or Baden—dollars and florins being the usual sums risked. The subjects of the Duchy are strictly prohibited from playing.

The public garden behind the Cursaal is laid out with great taste, parterres of flowers and shrubs encircling a large piece of water; whence paths well supplied with seats, and sheltered by acacias and other trees, diverge in various directions towards the numerous villas which have been erected of late years on the rising grounds—the palace of the Duchess Dowager being the most conspicuous. The most frequented afternoon walk, however, is along the winding path which is continued by the side of a streamlet up the valley to the village of Sonnenberg, overlooked by the picturesque and extensive ruins of its ancient castle, to which a considerable degree of historical interest is attached. The town or military band plays in the garden every afternoon, and sometimes in the evening, on which occasions a profusion of lamps is suspended from the trees, presenting an animated and pleasing effect; one or other of the military bands from Mayence, likewise, frequently comes to play at Wiesbaden.

Returning to the town from the Cursaal, a pleasant and sheltered path behind the right colonnade leads to the further extremity of the Wilhelmsstrasse, and to the Taunus-strasse, which is continued at right angles with the former in the direction of the beautiful valley of the Nerothal,

and constitutes the quadrangular frontage of the town, corresponding to the Rhein-strasse at its opposite side. Along half of this street, and descending from its centre to the principal spring (Kochbrunnen), where water-drinkers walk in the morning, a Trinkhalle, or colonnade, has lately been erected, which, however, is too lofty and too narrow to afford efficient protection either against sun or bad weather, to the crowds there collected. On one side of the Place is the hospital for patients requiring the use of the waters, and in the centre the spring itself is seen, agitated and bubbling from the escape of the carbonic acid, so as to resemble water in a state of ebullition, and, from its high temperature, emitting a considerable amount of vapour. The bathing-houses in the immediate neighbourhood—the European, the Romerbad, &c., in the Place, the Rose Hotel (nearly as large as the Four Seasons), and the Englishen Hof lodging-house, derive their supply of water from this spring. From the Kranzel, a Place close to the Kochbrunnen, the centre of which is embellished with a marble group, representative of Hygeia, a street (Langgasse) passes through the centre of the town, in a direction parallel with the Wilhelms-strasse. Here is the Adler Hotel, comprising the post and diligence-offices, and possessing one of the largest dining-rooms. Its baths are supplied by a special spring, of a less elevated temperature than the Kochbrunnen. From the Langgasse, the Webergasse—another street of shops, &c.—conducts to the Place already mentioned, between the Four

Seasons and Nassau Hotels ; another street passing beneath the arch of the ancient clock-tower, leads to the market-place, one side of which is occupied by the Ducal Palace—the interior of which is fitted up with taste, and is well worth visiting. Opposite to this building, the new church is in progress of construction.

With the exception of the streets just mentioned, those of the old town are narrow and indifferently paved—and contain nothing remarkable, unless a portion of the Heidenmauer (Heathen Wall), near the Post, be so considered. The Friedrich, and other modern streets are, however, broad, well paved, and regularly built, intersecting each other at right angles, and consisting, for the most part, of private residences and lodging-houses. The new Catholic Church and the Ministerium (public offices) are structures that would do credit to any capital. The chief streets and promenades are lighted by gas. The population of the town now amounts to 15,000 souls, by far the greater part of whom are Protestants.

A large proportion of the visitors remain in the hotels for the convenience of the baths, but many, who contemplate a protracted sojourn, engage apartments ; the preferable situations are the Wilhelmstrasse, and the villas on the rising grounds adjoining the Cursaal. The Taunus-strasse, likewise, presents good accommodation, as do the Rhein, Friedrich, and other streets in the modern portion of the town, though these localities are rather distant from the spring and baths. Dinners

may be had from a restaurateur's, but many visitors in lodging-houses prefer dining at the *tables d'hôte*, of which there are two daily at the principal hotels, at one and at four o'clock, the dinner at four being higher in price and superior in quality.

Great improvements have been effected in Wiesbaden of late years, and nothing has been neglected to maintain its reputation as the most-frequented watering-place in Germany, not only by invalids requiring its waters, but by those who seek recreation. In fact, its central situation amid numerous objects of interest within a moderate distance, the natural beauties of the surrounding country, the variety of walks and rides, the pleasing views presented from the rising grounds, together with the resources possessed by the town itself, combine to render Wiesbaden eminently favoured in this respect. Among the localities most resorted to in the environs are Sonnenberg, the Geisberg, with its experimental farm, the Faisanderie, the Distenmühle, Walkmühle, and other places of entertainment for holiday pleasure-seekers; Clarenthal—a farm surrounded by woods, occupying the site of the ancient monastery founded by the Emperor Adolph, of Nassau; and nearer the town, the Neroberg, to which lead paths easy of ascent through the woods. On this hill, as already mentioned, is the newly-erected Greek chapel, the interior of which is a perfect *bijou* of fresco, carving, and sculpture. A beautiful marble sarcophagus, with a full-length figure of the Duchess, occupies one of the side aisles.

The Platte, a ducal hunting-seat, placed on an elevated part of the Taunus ridge, and visible from a considerable distance, is one of the first objects towards which most visitors direct their course. It is about an hour's drive from Wiesbaden, on the high road to Limburg; the pleasantest way is, however, to ride through the woods, passing by a fine weeping oak beyond the Geisberg. The interior is fitted up with furniture, &c., made, for the most part, of stags' horns; while around the hall are suspended numerous antlers as trophies of the late duke's achievements in the chase. From the roof is displayed an extensive and varied prospect, including the windings of the Rhine for several miles, the plains bounded on the east by the Berg-strasse mountains, with Wiesbaden and the woods of Taunus lying immediately beneath.

Wiesbaden is well supplied with carriages plying for hire, and donkeys for those who prefer riding. The theatre is open throughout the year for the performance of operas and dramas, which are got up in a very creditable style. Artistes of celebrity frequently visit Wiesbaden and perform, or give concerts, in the Cursaal. It is not closed on Sundays, when, likewise, the shops continue open, and gaming is in full force; many visitors come into the town from Mayence, and elsewhere, on these occasions, and dine at the *tables d'hôte*. The Museum, containing a very good collection of natural history, and many objects of antiquarian interest found in the neighbourhood, and dating from the occupation of the country by the Romans, is open

on stated days; books may be obtained from the library, on an introduction to the librarian.

Mayence is distant about twenty minutes by rail, and is greatly resorted to by Wiesbaden visitors on Fridays, when the military bands of the garrison (Austrian and Prussian) play on alternate weeks on the terrace of the public garden, which commands a delightful prospect of the Rhine and its banks.

On account of its situation in a valley, sheltered on the north and east from winds, the town is felt to be hot and oppressive in the summer months, which state of the air, though generally favourable to those using the waters as seconding their action, is disadvantageous to many persons in health, who, however, may generally avoid the feelings of languor and indisposition arising from this cause by taking exercise in the day-time out of the valley, among the woods on the hills, where the air is fresh and invigorating. The sheltered situation of Wiesbaden renders it, however, far more eligible for an autumnal or winter residence, than any of the towns in the neighbourhood, and its climate is much milder than that of Frankfort, or any of the towns on the river. The mildness of the climate may indeed be inferred from the fact, that various shrubs and plants, indigenous to southern climes, thrive exceedingly well in this locality. The temperature of the ground, and of the atmosphere near the springs, is rendered warmer by them, and snow rarely remains long in the town. Several English families have been induced to

select Wiesbaden, of late years, for a winter residence, for, independently of its climate, there is, as may be supposed, abundance of accommodation as respects lodgings. There are, moreover, great facilities for the education of young people—either in the schools or by private teachers.

Wiesbaden, however, is not a desirable place of abode for young people in the summer season. The population is not remarkable for longevity, nor for the healthy appearance of its children; the great majority of the inhabitants seldom breathe the purer atmosphere of the higher ground, or take active exercise, and their health suffers in consequence. The most prevalent diseases are, in the warmer months, gastric and typhoid fevers, and atonic dyspepsia; congestion of the abdominal viscera, piles, and dropsical affections, are likewise not unfrequent. Scrofula is very prevalent, as are also chronic bronchitis and rheumatism. On the other hand, acute inflammatory diseases occur comparatively seldom; intermittent fevers are rarely met with; pulmonary consumption is much less frequent than in the surrounding districts, and the epidemics which at various times have prevailed among the populations of many of the German towns have not extended their devastating influence to Wiesbaden.

As I do not purpose to enter into a detailed description of places, but desire to note the circumstances in which valetudinarians are more peculiarly interested, I proceed at once to speak of the chief source of attraction to the numbers of

visitors who, from different parts of the world, resort to Wiesbaden, viz.—its mineral springs. The extent to which these are employed, in the form of baths alone, may be inferred from the fact that the town possesses no less than thirty-five bathing establishments, and upwards of eight hundred bath cabinets. These waters were likewise in high repute, in ancient times, among the Romans.*

The Kochbrunnen and Adler springs have already been mentioned; the Four Seasons, Schützenhof, and some other bath-houses, are supplied by their special springs; but all drinkers drink of the Kochbrunnen. The principal establishments have douching apparatus. Douching, however, is not so well managed at Wiesbaden as at several other baths, particularly in France. There are two or three establishments that have *douches descendantes*, but they are not much used; the height from which the water falls is too great, being from fourteen to sixteen feet; consequently, the lateral *douche* is almost exclusively used, the water being pumped from outside the bath, and passing through a flexible tube introduced by a hole in the door, an

* Even within my recollection, the amount of the population and visitors has more than doubled. Dr. Braun states in his work the following to be the proportion of increase within the present century:—

Year.	Inhabitants.	Patients.
1800	2,000	900
1825	6,000	4,000
1854	15,000	26,000

attendant being in the cabinet to direct it against the part of the body indicated. Hence it results that the *douche* is often too powerfully administered, and much harm, instead of good, may be produced. Another deficiency of the Wiesbaden *douches* is, that they are only given in the bath, the whole body being exposed, whether necessary or not; whereas, in many other baths, an arm or leg, passed through a screen or board with apertures, may be subjected to the *douche* without the patient taking off his clothes or going into a bath.

The temperature of the Kochbrunnen is 158° Fahrenheit: consequently, the water is too hot to be drank quickly; nor is this advisable, as this, like other mineral waters, is better digested when taken slowly by little at a time, than when a quantity of water is taken at once into the stomach. The Adler-spring is not so hot, and that of the Schützenhof, which is farthest off, has a still lower temperature, there being a difference of fifteen degrees between it and the Kochbrunnen. There is no doubt that these springs have a common origin at or near the Kochbrunnen, and that the difference in their temperature depends upon the water passing some distance underground before coming to the surface, as has been found to be the case of several other places where the springs were supposed to be different. In a therapeutical point of view, however, the question is not of much importance, as the water being left to cool in reservoirs, or in the baths, for several hours, before it can be used, till it approach the requisite degree of

temperature for bathing, the effects must be the same.

In chemical composition, the springs are the same; the Schützenhof spring has a fraction less of saline substance and gas than the Kochbrunnen, which probably depends upon the same cause as its lower temperature. The principal ingredient is muriate of soda, which exists in large quantity. The only hot springs in Germany which resemble it in this respect are those of Borcette, near Aix-la-Chapelle. Those of Bourbonne-les-Bains in France have also some analogy with the Wiesbaden springs. The water contains other salts in small proportions, as I have shown in the analytical table. On account of the large quantity of the saline substance, the high temperature of the water, and the gas which it contains, the action of the baths is exceedingly exciting, and under proper management is extremely well fitted to procure the removal of many long-standing and intractable diseases. In most instances, the drinking a glass or two of the Kochbrunnen causes a sense of general warmth, with slight perspiration upon the forehead or lip. When its use is continued, it promotes the action of the skin, generally increasing its secretions, as also those from other organs, as the kidneys or the mucous membrane of the alimentary canal, though very frequently no sensible effects are experienced. Occasionally, however, unpleasant consequences ensue upon drinking two or three glasses, as headache, giddiness, flushing, throbbing of the temples, etc.; and if these should recur upon its

repetition, the internal use of the water had better be discontinued, and a cold saline, as Kissingen or Homburg, substituted, if circumstances indicate that these are likely to be beneficial. The water is, however, in general, very well borne by the majority of patients to whose cases it is suited.

A single bath of the Wiesbaden water will generally be followed by no particular sensation, beyond the agreeable feeling resulting from a warm salt bath. In some persons, however, especially of full habit, headache and other unpleasant symptoms may be induced; and people in health, as well as those to whose cases the baths are not applicable, incur great risk from persisting in their use, and several have reason every year to regret their imprudence in this respect. As regards the particular cases to which these baths are more especially applicable, I see no reason to alter the opinions already expressed in the former editions of this work, the general justness of which has been confirmed by more extensive experience of their effects; and first, as respects the cure and relief of gouty and rheumatic affections, it has become pretty evident of late years, in England, that the high reputation which the Wiesbaden waters have enjoyed from time immemorial in Germany has not been over-estimated. Numbers of these patients annually return home in an improved state; and several of those whom I have known, who were for a long series of years subjected to repeated attacks of gout, have escaped a recurrence during the winter and spring, after having gone

through a course of the baths, some of whom have returned, in subsequent seasons, greatly improved in health and appearance, more for the purpose of guarding themselves from a relapse than from any actual necessity.

In cases of long standing, of the atonic kind, with or without deposition of calculous matter in the joints, occurring in persons about or beyond the middle period of life, the Wiesbaden baths are calculated to render the most eminent service; indeed, according to Dr. Peez, the more inveterate the gout is, the more effectually can it be combated by these waters. Though bathing is the most essential part of the treatment, it is advisable in most of these cases to combine with it the internal use of the water. Mild douching will also tend very much to the dispersion of local swellings, puffiness, stiffness of the joints, of the wrist, fingers or foot, and also of chalky concretions, although it should not be used if there be a tendency to inflammatory action, nor until a certain number of baths have been taken. During an attack, the baths will require to be suspended, till the more severe symptoms have subsided; when the patient may again begin, by previously drinking the water while confined to his room. In general, patients who have been accustomed to free living, do not bear a low regimen, and will be the better, after the inflammatory symptoms are allayed, for being allowed some solid food if an inclination be felt for it; care being taken that the quality be plain and light and that the quantity be small. In most

cases of erratic, irregular, or repelled gout, these baths will also probably be productive of great benefit, and will not unfrequently cause the morbid action to restrict itself to one spot; a more regular attack being sometimes induced, previous to an amelioration taking place. Persons who have experienced only two or three attacks, but in whom the predisposition is strong, may generally expect to derive permanent benefit from the baths, provided they are subsequently cautious in their mode of living, and do not indulge too freely in the pleasures of the table; on the other hand, where there is much tendency to acute inflammation, and in persons of a plethoric or a highly-irritable habit, I should consider Wiesbaden less likely to be beneficial than an alkaline or a slightly-mineralised spring, as Vichy, Ems, Teplitz, Wildbad, Buxton, or Chaude Fontaine, or the internal use of a spring like Homburg, Kissingen, or Marienbad, combined or not with baths, according to circumstances.

I should be inclined also to counsel many young persons, in whom the gout developed itself at an early age, in consequence of a strong hereditary tendency, to give the preference to a spring of this kind; though it is probable that they would derive advantage from Wiesbaden. It cannot be expected, however, that a single course of the waters will always suffice to eradicate the disease; and, in order to have the chance of a permanent cure, persons afflicted with gout would do well to return, for two or three consecutive seasons, to the springs from which they derived benefit; passing the inter-

veming months in a suitable climate, and paying attention to the regulation of their diet and mode of living.

As the mornings are frequently chilly, and it is of importance to prevent the action of a cold atmosphere on the surface of the body, while under a course of bathing, I do not in general recommend to English patients the very early hours of rising and drinking the water adopted by the Germans ; six, or half-past, will be sufficiently early, even for those who take their bath before breakfast, and for those who do not, any time between that hour and half-past seven ; breakfast being taken an hour after drinking, and consisting of tea or coffee, according as the one or other is found best to agree. Those who dine at one o'clock should again drink about seven in the evening ; while for those persons who prefer dining at four, or later, from two to three will be the best time for taking the second dose. The effects of the water are thus better sustained than when the whole quantity prescribed is taken in the morning, and an interval of four-and-twenty hours is allowed to elapse between the periods of drinking ; the water is often thus better digested, and is well borne when the distension of the stomach by the same quantity, if taken before breakfast, would disagree, and give rise to unpleasant symptoms, or occasion a too active operation upon the bowels or kidneys. It is also advisable, when a full course of these and other mineral waters is required, to recommend a temporary suspension of the course, and change of air for three or four days, after a

certain period of drinking and bathing has elapsed; by this means the system is not too early saturated, and the patient returns to resume the use of the water in a more fit state for its absorption, and with a greater probability of more durable benefit.

Most chronic rheumatic affections will be removed or greatly relieved by the Wiesbaden baths. In the slighter cases, not of long standing, a short course, for about three weeks, will be frequently sufficient. In the more intractable cases of articular and muscular rheumatism, as also in the pains of a rheumatic nature affecting the face, head, and other parts, a more prolonged course will often be required, combined with the use of the *douche*. In some cases the hot-bath, vapour-bath, or *douche*, may be advantageously employed, especially in elderly persons whose skin is dry and seldom perspirable. Where, however, the complaint has supervened upon, or has been continued from, an acute attack, in which any symptoms of the heart or pericardium being affected were present—which is more frequently the case than is generally supposed—it would be well to ascertain, by auscultation and percussion, that none of these symptoms remain, as they would very likely be aggravated by the employment of the water. Those rheumatic affections depending upon long exposure to wet or cold, to which military men on duty are peculiarly subject, are especially relieved by these baths. Several bad cases of this kind have fallen under my observation, in which the

most beneficial and unexpected results followed a full course of the waters.

Almost all thermal springs are, however, recommended in cases of rheumatism ; and there is no doubt that several of those who have derived benefit from the Wiesbaden waters would also have been benefited by others ; and also, that some waters of a different character would succeed in cases where little or no benefit ensued from those of Wiesbaden. A person might derive advantage from Wildbad, or any other simple thermal spring, after the failure of a sulphurous spring, or a strongly-impregnated saline one, as Wiesbaden. This, however, must be considered as an exception depending upon idiosyncrasy, or other peculiar circumstances, not always apparent, as the reverse would be more frequently the case ; and if extensive statistical data could be impartially obtained respecting the comparative value of different mineral springs in this disease, I have no doubt it would be found that, though a simple thermal spring and a hot saline one are both beneficial in rheumatic, and in several other diseases ; yet that the latter would be more generally successful ; that the benefit derived from its use would be obtained in a shorter period of time, would be of a more durable kind, and that relapses would less frequently recur than when the former kind of spring had been employed. It does not, however, ensue from this that a slightly-mineralised thermal spring is not preferable in some cases, though not in the majority—as, for example, where the disease

is combined with much nervous irritability; where it is of a subacute form, and calming and sedative remedies are more clearly indicated; as also in young persons of a full or plethoric habit; in which instances a strong sulphur spring—as Aix-la-Chapelle, or a saline one, like Wiesbaden—would be likely to produce a too perturbatory action; while the simple thermal springs of Plombières, Luxeuil, Wildbad, Schlangenbad, or Leuk, where persons may remain for a much longer period in the bath, would in all probability be extremely effectual in allaying the morbid irritability, and in removing the disease. On the other hand, where, combined with rheumatic affections, there is a state of general relaxation and debility, the internal use of a chalybeate spring would be more likely to procure their removal; joined either with a course of tepid saline baths, or with baths of the chalybeate water, if not counter-indicated by the patient's condition. Where fixed pains, local indurations, or swellings exist, the use of the *douche* may be advantageously subjoined, after a few baths have been taken. Certain intractable cases, which have resisted mineral waters, as well as the other remedies employed, may yet frequently be relieved by vapour-baths, which are established at several places.

Those nervous pains, recurring in paroxysms, affecting the branches of particular nerves of the face, head, or extremities, to which the term neuralgia or tic is generally applied, and which not unfrequently originate from a rheumatic or

gouty diathesis, from the suppression of habitual discharges, or of cutaneous eruptions — which causes, though perhaps somewhat exaggerated by Continental practitioners, are not sufficiently attended to in England—are more likely to be relieved and cured by a properly-directed course of mineral waters, than by pharmaceutical remedies or local applications. To many of these cases Wiesbaden would be exceedingly applicable, especially when the functions of the skin are sluggishly performed, and there exists a congested state of the abdominal or pelvic viscera, with retardation or irregularity of the periodical secretion in females. In those cases which appear to arise from other causes, as moral influences, a high state of nervous excitability, &c., I should be more inclined to recommend waters of a different kind. Water or vapour *douches* may in general be advantageously combined with the baths and the internal use of the same water—or of a water of a different nature, as that of Homburg, Marienbad, &c., according as circumstances may seem to indicate their employment.

The state of abdominal plethora, with congestion of the liver, and obstruction in the circulation of the *vena porta*, termed by the Germans *Unterleibsvolblütigkeit*, with its consequences, as impaired digestion, deficient or vitiated biliary secretion, piles, &c.—occurring for the most part in persons about or beyond the middle period of life, who have been addicted to the pleasures of the table, and marked by more or less protuberance of the abdo-

men, with diminished muscular and nervous energy, —is one well calculated to be relieved by the use of the Wiesbaden waters internally and externally employed. The baths, by exciting the activity of the nervous and vascular systems, and by determining powerfully to the surface, tend most materially to equalise the circulation and remove the internal congestion, while by the internal use of the water, the secretions of the mucous membranes, of the alimentary canal, of the liver and kidneys, are improved in quality, and often perceptibly increased in quantity; at the same time that the mesenteric glands and absorbent vessels are stimulated to increased activity, and the digestion is consequently improved. Even when under these circumstances the drinking of the water is not followed by immediate sensible effects, it is frequently not the less efficient on that account; and unless some inconvenience be experienced, it should be persisted in, as after a certain time critical symptoms will often occur, and be followed by relief. In several of these cases, especially where there exists hardness or tension in the region of the liver, spleen, or in other parts of the abdomen, the *douche* will be of material assistance in the treatment; a cold aperient gaseous water, as Kissingen, or either of the above specified, being preferred for drinking. In many cases of this kind where bathing is counter-indicated, and constipation exists, patients would do better to resort to Carlsbad, or one of the springs already named, according as circumstances indicate.

In hemorrhoidal affections especially, the effects of the Wiesbaden springs are often very marked ; indeed, Dr. Peez attributed to them a regulating and controlling power in these affections, observing, "The periodical and habitual hemorrhoidal flux, if not too strong nor too weak, if not accompanied with painful symptoms, experiences no change by the action of these baths ; especially if it be necessary to health ; if, however, it be too abundant, so as to threaten life, the Wiesbaden water, if not used too hot, removes these dangerous phenomena —a too strong flow is diminished, one that is too weak is increased or ceases altogether, according as the condition of the patient's health requires." The physicians at other baths also speak in very decided terms of the effects of their waters in these complaints ; as, however, they are mostly of a secondary nature, whichever mineral spring is best calculated for the removal of the causes upon which they depend should be preferred, though it is seldom that bath physicians would be inclined to acknowledge in other springs an efficacy superior to those to which they are attached.

In many cases of paralysis, baths of mineral waters offer the most efficient, and often the only means of arousing the nervous energy of the system, and of the paralysed parts ; and few have a more beneficial influence in this way than those of Wiesbaden ; but here, again, it cannot always be determined beforehand, that baths of this water will be more effectual than those of other springs containing but a small proportion of solid and gaseous

substance, as the latter occasionally succeed after the failure of the former. In the obscurity which still envelops the mode of action of mineral baths, this cannot be satisfactorily accounted for, except upon the principle of idiosyncrasy, or by the supposition that the disturbing action of a thoroughly-impregnated spring is less adapted to certain of these cases than the more tranquillising and sedative influence of a simple thermal, or slightly alkaline warm spring. In most instances, however, where there does not exist a high degree of nervous excitability, or tendency to fulness in the cerebral vessels, the baths of Wiesbaden may be used with great prospect of advantage; especially when the complaint is of a rheumatic origin, or depending upon the impression of poisonous influences upon the nervous system, as malaria, the abuse of mercury, or the employment of this or some other metals by workmen; as also in those cases where the disease appears to be of a purely local nature, not connected with cerebral disease, but arising from deficient energy of the nerves of the part, or of the spinal marrow, consequent upon exposure to cold or wet, or other analogous causes. Even in paralysis affecting a limb or one side of the body, remaining after an apoplectic seizure, baths of this or other mineral waters may often be advantageously employed, provided there be no symptoms of cerebral congestion, or organic disease. Plethoric individuals, and those whose digestive organs are disordered, will frequently require some preparatory treatment, previous to using the baths, in paralytic, as well as in other complaints.

These, then, are the principal diseases which the Wiesbaden waters are more especially calculated to relieve, and in which their use in the form of the bath and *douche* is the most essential part of the treatment. There are, besides, various other complaints to which the external or internal use of the water, or both combined, is extremely suitable, in common with several other mineral springs; but of which the peculiar circumstances of each case require to be investigated, in order to enable the practitioner to decide upon the spring likely to be most effectual. Of these, many scrofulous affections will be cured or greatly ameliorated by the internal or external application of these waters; especially enlarged lymphatic glands of various parts, and of the mesentery, occurring in children or young persons of a torpid habit, with tumid upper lip and abdomen, a vitiated state of the intestinal secretions, and a harsh, dry condition of the skin. Here the exciting and resolvent powers of the waters are exceedingly effectual, by improving and augmenting the secretions of the alimentary canal, and of the skin; and, by stimulating the absorbent and vascular systems, mostly cause the speedy diminution of glandular or bony swellings. In many cases of this disease, however, a water like Kreutznach, would be preferable.

Another case, in which the Wiesbaden springs are often eminently serviceable, is, where there is a generally-disordered state of health, without the existence of any actual disease, or material derangement of any particular functions, except, per-

haps, impaired digestive powers—as is very frequently seen in Londoners, and inhabitants of large cities, closely engaged in trading, mercantile, or professional occupations; as also those who have been resident in a tropical or unhealthy climate; such a state, though relieved and palliated for a time by medicines, not unfrequently terminates in serious functional or structural disease, if allowed to continue for a long period; and nothing would tend more effectually to its removal than temporary absence from the cares of avocation, change of air and mode of life, and the employment of a mineral spring like Wiesbaden, followed by that of a chalybeate water, in those cases where it is not counter-indicated.

The same may be said of several cases of hypochondriasis, with disordered digestive powers, to which Wiesbaden is applicable, both on account of its waters tending to rectify the deranged state of the digestive organs, and also from the beneficial influence which would be exerted in most instances on the patient's *moral*, by the movement of the place, its cheerful appearance, the beauty of its environs, and the neighbourhood of so many objects of interest. To some patients of this class, tepid bathing, with the internal use of a cold gaseous spring, is most applicable. To others, again, certain other mineral springs are best adapted.

The suppression or painful performance of periodical functions peculiar to females is frequently benefited by the Wiesbaden baths; especially if the

cause be cold, checked perspiration, or a congested state of the abdominal or pelvic viscera. Some syphilitic affections, especially where much mercury has been employed, and certain chronic cutaneous diseases, psoriasis, impetigo, &c., where the skin is generally in a dry state; as also eruptions of the face depending upon derangement of the alimentary canal or liver, will often be removed by baths of a warm saline water like Wiesbaden; and likewise by sulphurous or alkaline springs, either alone or combined with the internal use of the same, or some other mineral water. In certain bronchial and laryngeal affections, with cough, and scanty or deficient expectoration, the Wiesbaden baths, combined with the internal use of the water, and the inhalation of its vapour, may be expected to be of material advantage.

On the other hand, these springs, like most others, will generally be prejudicial in organic disease of the lungs, heart, or large vessels; in disorganisation of the abdominal or pelvic viscera, with fever, profuse haemorrhage, or discharges *per vaginam*, either dispending upon relaxation, or upon the presence of hypertrophy, polypus, or other structural disease.

The beneficial effects of the Wiesbaden, and other mineral springs, are mostly evident during the time of their use, after the system has been for some time subjected to their action, and are not unfrequently consecutive to discharges, or eruptions of a critical nature, induced by the water, which, by its perturbatory action, and exciting the vital

energies, frequently brings diseases from the chronic to a more acute state previous to their removal. Hence a slight degree of feverishness, with increase of long-standing pains, etc., are frequently proofs of the beneficial action of the water, and precursors of a favourable change. In other instances, no perceptible effect or amelioration takes place during the employment of the waters, but becomes apparent after they have been for some time discontinued. When this is the case, or when a degree of benefit has been derived during the course, in long-standing or intractable disease, it would be most advisable for the person to return the following season, as it can scarcely be expected that complaints, which have existed for months or years, are to be always removed by three or four weeks' course of mineral waters. The invalid, under such circumstances, should therefore be contented with the proofs he has already received, that the waters have been of service, and may, in most instances, look forward with confidence to a removal of the disease, or to a still greater degree of amelioration, on resuming their use the following season.

As climate has also great influence on the production and removal of several diseases—especially gout, rheumatism, neuralgia, paralytic, bronchial, and scrofulous affections—patients who have been benefited by a course of mineral baths will find the benefit to be of a more lasting nature, and that they will be less liable to relapse, if, instead of returning to the more humid and variable atmosphere

of some parts of Great Britain or Ireland, they could pass the winter in the south of Europe.* This is more especially advantageous, when a repetition of the course is advisable in the following summer; as the effects of the waters would be in a great measure kept up, and seconded by a warm climate during the winter, and the invalid would return to the springs under the most favourable circumstances for deriving permanent benefit.

The recent analyses of the Kochbrunnen by Lade and Fresenius, differ materially from the former one of Kastner, representing the spring to be much richer in salts and gas. They approximate very closely to each other. The following table shows the contents of a pint of water:—

Muriate of Soda	.	.	.	.	52.499
„	Potass	.	.	.	1.119
„	Ammonia	.	.	.	0.128
„	Lime	.	.	.	3.617
Sulphate of Lime	.	.	.	.	0.692
Silicic Acid	.	.	.	.	0.460
Carbonate of Lime	.	.	.	.	3.210
„	Magnesia	.	.	.	0.079
„	Iron	.	.	.	0.043

with minute fractional portions of a grain, and traces of Carbonate of Barytes, Strontian, Manganese, Phosphate of Lime, and organic substance; making a total of fixed substances, 63 grains.

Free Carbonic Acid, 10 cubic inches.

* For information on this point, I beg to refer to my "Companion to the Continent, with Remarks on Climates".

SCHWALBACH.

LANGEN-SCHWALBACH lies in a valley on the high road from Wiesbaden to Ems and Coblenz. It is considerably higher than Wiesbaden, from which it is separated by a steep hill (the Hohe Wurzel), over which the road is carried.* To a passing traveller the town itself does not present a very attractive aspect, yet there are few places where a few weeks in the summer could be more agreeably spent, by those desirous of avoiding the bustle of the larger watering places. The acclivities of the hills bounding the valley on either side being denuded of trees, the sun's rays are powerfully reflected upon the town, so as to render the heat at times inconvenient, yet the air in general is light and bracing, especially on ascending the heights, or strolling through the surrounding woods. A fine avenue of trees, the Allée, adjoins the largest hotel, and forms a continuation with the promenade between the Weinbrunnen and Pauline springs. These, together with the rows of trees around the Stahlbrunnen, afford sufficient shelter from the heat during the middle of the day. Owing to the increased number of visitors, Schwalbach has been much improved of late years; the accommodations

* The drive occupies two hours. By the opening of the new road, which avoids the hill, half an hour will be gained.

are superior, the promenades have been fresh planted, and embellished with the addition of a piece of water. The walks are well kept, and supplied with seats at convenient distances. The principal hotels are the Allée-Saal, the Post, and the Duke of Nassau; this latter appears to be more generally favoured by the English. The Allée-Saal contains public rooms, where concerts and other entertainments are given, and to which a small reading-room is attached. Beneath the Allée-Saal, and at the extremity of the promenade, is the Ducal bath-house, which is the first object to attract attention, on descending the hill on the Wiesbaden side. The bathing cabinets are roomy and conveniently fitted up, being separated into three compartments for baths of the water of the three springs. The water is warmed to the required temperature for bathing by means of a steam apparatus, so that its properties are scarcely altered. In front of the ground-floor is a colonnade for the sale of fancy articles, books, &c., over which a promenade-room extends the whole length of the building, serving as a place for exercise in wet weather.

Near the bath-house rises the Weinbrunnen, which has retained its name since the time of the Romans, by whom it was termed "Aqua Vinaria." About a quarter of a mile up the valley is the more recently-enclosed Pauline; the broad, shaded paths on either side of the intervening meadow-land being the usual promenade at the hours of drinking the waters (morning and evening), when a musical

band is in attendance. The drinkers at the Stahlbrunnen (discovered in 1740) are less numerous than at the Weinbrunnen. This spring is separated from the valley in which rise the two others by a hill. A fourth spring (Rosenbrunnen) is used only for supplying the baths. Several other springs rise in and about the town; but they are not employed medicinally.

The walks and rides extending beyond the Pauline in different directions along the valley, and among the hills, through woods of oak, ash, and fir-trees, are highly beautiful and varied. Those, also, which are continuous with the fine poplar avenue leading from the Stahlbrunnen are extremely interesting, while on the opposite side of the town the visitor will be equally gratified by the beauty of the environs, whether he turn to the left and ascend the beautifully-wooded valleys to Adolphseck, and the picturesque ruin of Hohenstein, five miles distant, or take the road to the right towards the Eisenhammer, and stroll among the hills and valleys in that direction.

The water has a temperature of 8 deg. Reaumur, is pleasant and bracing. Most persons after drinking a glass or two experience a degree of increased vigour, imparting, as the author of the "Bubbles" expresses it, "a desire to face the hill."

When it agrees, it does not produce any unpleasant feelings, or constipation of the bowels, but a sensation of exhilaration and general *bien-être*. In some persons, however, especially if plethoric, its action is so exciting, that even a small quantity

could not be repeatedly taken without risk, neither could it be borne in many cases where there existed a high degree of nervous irritability. The three springs vary in the amount of solid and gaseous parts. According to Kastner's analysis, the Stahlbrunnen contains but little saline substance (from three to four grains), and nearly three-quarters of a grain of carbonate of iron, to the pint; hence it is termed the steel spring, in contradistinction to the others, though it actually contains a fraction less of iron than the Weinbrunnen, in which the taste of the metal is not so marked, owing to the larger quantity of salts and gas contained in an equal quantity of water.* The Pauline spring has less iron than either of the others, and also less gas, which is not so intimately combined with the water, on which account it is more likely to disagree with some people: with others, however, it agrees better than either the Weinbrunnen or the Stahlbrunnen.

From the different proportions in which the constituent parts are combined, the Schwalbach springs are capable of fulfilling various indications, and are applicable to the majority of cases in which chalybeates are required. When one spring disagrees, one of the others is frequently found to answer remarkably well; hence Schwalbach has the advantage over other places which only possess one spring, or where the springs—if there be several—do not vary materially in their composition and effects.

I consider the Weinbrunnen to be in general the

* According to Fresenius, the Stahlbrunnen contains a fraction more iron than the Weinbrunnen.

preferable spring for drinking, its constituent parts being intimately combined with the water, and in the proportion best adapted for producing a tonic effect, without being too astringent or heating. In composition it holds an intermediate position between the Pouhon of Spa—which the Stahlbrunnen more nearly resembles—and the Trinkquelle of Pyrmont, containing about twice as much salts, gas, and iron, as the former, and considerably less of the saline and gaseous parts than the latter, though nearly as much iron. The water is best adapted for exportation, and may be drank at a distance, combined or not with a course of baths at another spring. I often recommend the internal use of the Schwalbach water to patients using the baths of Wiesbaden and Schlangenbad.

These springs are more particularly suited to cases of pure general or local debility, not depending upon the presence of disease of any particular organ, but arising more from general poorness of blood, with a deficiency of its red globules, and, as a necessary consequence, a laxity of the solids, with sluggishness in the performance of the functions of life, as in leucophlegmatic and chlorotic individuals. In debility of the stomach and bowels, with consequent scanty or impaired secretion, they are a most efficient remedy, and, by exciting the activity of the glandular apparatus, while, at the same time, they give tone to the muscular coat, tend to remove a torpid or a too relaxed state of the alimentary canal, much better than cathartics or astringents, the action of which is mostly but of a temporary and pal-

liative nature, and is too often followed by an aggravation of the malady.

A constipated state of the bowels not unfrequently arises in indolent habits from a deficiency of their vitality and muscular energy, and would be removed by remedies which best impart increased vigour to the system. On the other hand, a degree of relaxation may arise from the same cause, and from preternatural weakness of the mucous membrane—hence these opposite states may originate from the same source, viz., debility, and may often be rectified by a similar remedy; and thus these waters, whose action is generally constipating, may, in cases where inactivity of the bowels arises from deficient tone of their muscular coat, by removing the cause, become an effective aperient.

In cases of nervousness in either sex, with the tendency of spasmody action, so frequently occurring in young females, when there is no manifest visceral congestion or *engorgement*, they are generally highly efficacious in removing the morbid susceptibility of the nervous system. Where, however, there exists high nervous irritability, especially in persons of a plethoric habit, with irregularity in the distribution of the blood to particular parts, as marked by frequent headaches, flushings, coldness of the extremities, and disordered menstruation, they are not advisable, and cannot be borne, till after the irritability has been allayed, and the circulation of the blood more equalised by sedative and tepid baths as *Schlangenbad*, or by

other means; when this has been effected, chalybeate springs may be used with the greatest probability of permanent benefit. A similar plan of treatment is well calculated to remedy the deranged state of health, with general weakness, so frequently seen in residents of large cities, either when it is a consequence of over-anxiety, the pressure of particular avocations, &c., or of dissipation. Nothing would be so likely to restore vigour to the nerves, and colour to the cheeks under these circumstances, as a course of chalybeate baths, or the internal use of a chalybeate spring combined with, or subsequent to, bathing in a thermal water. In some elderly persons, also, whose nervous energy and digestive power are impaired, the springs of Schwalbach and the bracing quality of the air would prove excellent restoratives; though in extreme old age, or where there exists great depression of the powers of life, they would not be admissible. Cases of the nervous kind of hypochondriasis, without material disorder of the digestive functions, would most likely be benefited by waters of this class, which would likewise be highly serviceable in some cases of relaxation of the mucous membrane of the air-passages, without inflammatory complication, but attended with mucous expectoration, or occasional passive hemoptysis, with muscular debility and mental lassitude. Persons who are liable to profuse perspiration, supervening on slight exertion, and arising from general weakness or from a too relaxed state of the cutaneous pores, would generally derive benefit from a course

of these waters; as would also many patients labouring under incipient tuberculosis, in which the deficiency of iron in the blood is apparent, when not accompanied by manifest pulmonary disease.

The Schwalbach waters are not unfrequently recommended to patients who have undergone a course of those of Ems or Wiesbaden, and are of great service in removing the lassitude and relaxation sometimes remaining after their use. As, however, the beneficial action of the above-mentioned and other springs is frequently not manifested till some time after they have been discontinued, much harm has resulted in not a few instances, from patients employing chalybeate waters immediately after a course of thermal baths. Dr. Fenner, in one of his later works, alludes to the abuse frequently made of chalybeate springs in these terms: "While it is not to be denied that in many cases an after-cure by means of chalybeate waters cannot be dispensed with, yet it must be admitted that their much too general and vague employment has been the occasion of great harm. Experience but too frequently teaches us, that patients who had become considerably better by their course of thermal waters, have got much worse, and lost the advantage they had previously obtained, from being ordered to use a chalybeate spring."* Hence it would be advisable, when subsequent critical effects are expected, not to employ a chalybeate, by which their occurrence might be prevented: and even

* Ueber Nachkuren.

when tonics are considered necessary, to allow some interval of time to elapse between the employment of two classes of springs differing so much in their nature.

In most instances the internal use of one of the Schwalbach springs is combined with baths, which are in many cases the principal means of relief. In fact, from the whole surface of the body being exposed to the action of the water in bathing, a considerable quantity of the iron is absorbed, and the tonic effects are frequently experienced by the patient immediately after the bath, which is thus a valuable means of obtaining advantage from these waters, when their internal use produces constipation, headache, and other unpleasant symptoms, as not unfrequently occurs in weakly and scrofulous children, and persons of a full though flabby habit. Where also there exists some local affection, as rheumatic pains, weakness of parts, relaxation of the ligaments of joints, neuralgic complaints, &c., the baths will be the most essential part of the treatment, and the *douche* may in most of these cases be advantageously employed.

In cases of dysmenorrhea, menorrhagia, and leucorrhœa, arising from general debility, or local relaxation, and not depending upon a state of irritation, or vascular congestion, from fifteen to twenty-five baths would be likely to render effectual service. The baths should be taken at rather a low temperature, as twenty-three deg. R., as the object of them is to strengthen, and not to relax, which a hotter bath might do. At first a slight

shuddering is generally experienced, which does not last more than a minute or two, and is succeeded by a comfortable sensation of warmth. Dr. Fenner recommends the Weinbrunnen baths in preference, where the object is to obtain the absorption of a large quantity of the iron, as in chlorosis, torpidity of particular functions, stomach and bowel debility, uterine relaxation, the weakness remaining after acute disease or profuse discharges: the Stahlbrunnen in atony or laxity of the skin and muscles, or paralysis, or passive hæmorrhage; and the Pauline, where a milder tonic effect is required, as in children and old people. He likewise observes, what requires to be noted, that passive hæmorrhages and the discharge of leucorrhœa become much increased at the commencement of the treatment, but on continuing the baths, they gradually become less, and ultimately cease. It is a bad sign when the copious discharge is suddenly stopped by the too powerful contraction of the vessels induced by the baths, as it returns shortly after, and a degree of weakness succeeds. When speaking of sterility, Dr. F. remarks, "All baths have been praised for their power in this respect; all have their Bubenquelle. Whether one goes to Carlsbad, Marienbad, Franzensbad, Pyrmont, Spa, Bareges, Ems, or elsewhere, one will equally hear wonderful histories, and at no place will it be admitted that the individual spring fails."* A spring like Ems would be more likely to remedy this con-

* Die Bäder in Schwalbach.

dition in cases where there existed a high degree of irritability, either general or local; with painful menstruation, tendency to cramp; or nervous weakness, combined with an extreme susceptibility originating from irregular distribution of blood, and undue determination to the uterine system. On the other hand, where sterility is connected with an apathetic or atonic habit, coldness of temperament, torpidity in the performance of the vital functions, nervous debility depending upon diminished vitality, depressing moral impressions, or serious illness, general poorness of blood or chlorosis; or with local debility of the uterine system, either from chronic leucorrhœa or copious hæmorrhage; there would be more probability of its being remedied by the employment of chalybeate springs, or by other tonic means calculated to remove its causes.

The latest work on Schwalbach is by Dr. Genth, one of the resident physicians—"The Iron-waters of Schwalbach"—a great portion of which is taken up with the investigations of pathologists with respect to the amount of iron in the blood under various conditions of the economy—the absorption of water, iron, and other substances into the blood by means of the skin, &c. As I have treated of these subjects when speaking of the action of mineral waters in general, I have deemed it unnecessary to enter upon their consideration in my works which refer to the special applicability of particular baths to various forms of disease.

Analysis of the waters, by Fresenius, in 1855.
 Amount of constituents in a pint:—

	Stahlb.	Weinb.	Pauline.
Bi-carb. Soda	0·158	1·884	0·134
Mur. Soda	0·051	0·066	0·050
Sulph. Soda	0·060	0·047	0·048
Sulph. Potass	0·028	0·057	0·031
Carb. Lime	1·699	4·393	1·655
Bi-carb. Magnesia	1·629	4·467	1·299
Carb. Iron	0·643	0·443	0·518
Manganese	0·141	0·069	0·091
Silex	0·246	0·357	0·119
Grains	4·660	11·967	4·029
Free carb. Acid, c. in.	22·899	20·819	18·229

By this it appears that the amount of solid constituents in the Stahlbrunnen and Pauline is about the same. Fresenius' analysis differs from that given by Dr. Genth, which specifies upwards of six grains to a pint of the Stahlbrunnen, and also the iron to be a trifle more in the Weinbrunnen than in the Stahlbrunnen. The amount of gas is stated to be much larger in all the springs, that in the Pauline to as much as 39,580 cubic inches. Cold springs are, however, liable to variation at different times, which may account for the discrepancy.

SCHLANGENBAD.

THIS bath is about a two hours' drive from Wiesbaden, either by the Schwalbach road, or by the more beautiful one passing from Biberich along the Rheingau through Neudorf.

Few places would be more eligible, as a summer residence, for those who prefer seclusion and tranquillity to the crowd and bustle of large baths, than Schlangenbad, which possesses most of the advantages sought for by those whose health requires rather repose than energetic medication. Situated in a beautiful and sequestered valley, enclosed between well-wooded hills (on which paths, easy of ascent, have been constructed to the summit, whence may be obtained fine views of the surrounding country), and near the richest part of the Rheingau, it possesses great facilities of communication with the Rhine, and with the other baths of Nassau, especially Schwalbach and Wiesbaden, to which good roads conduct. The numerous ruins and other objects of interest within an easy distance, will enable visitors to vary their rides and drives, while pedestrians will derive great gratification from exploring the beauties of the forest scenery—particularly through the valley in the direction of Schwalbach. Those who are unable or disinclined to ascend the hills, or to make distant excursions, may take air and exercise at any time

of the day in the shaded alcoves formed by the interlacing of the boughs of trees, and extending a considerable distance towards the woods from the promenade, and the hotel.

Besides the old and new bath-houses, the Nassauer Hof hotel, and the long antique-looking gallery, which served as a promenade room, of which Schlangenbad originally consisted, there have been erected, since the place has been more brought into notice by the publication of the "Bubbles," an Englischer, a Russischer Hof, a Victoria and other houses, for the accommodation of the increased number of visitors. At the Nassau hotel, which belongs to the Duke, and also at the bath-houses, the apartments are very clean, neatly furnished, and reasonable, the price of each being inscribed over the door. Most persons content themselves with a bed-room, and dine at the *table d'hôte*, where the dishes, if not so varied as at Wiesbaden, are sufficiently abundant, and good in quality. A reading-room and a circulating library have been recently established in the new bath-house.

The bathing cabinets, notwithstanding the depreciating terms in which Dr. Granville has spoken of them, are exceedingly convenient, more so, indeed, than at most other baths. They are, for the most part, lofty, and well ventilated, and are divided into a dressing-room and a large and spacious marble *baignoire*, capable of containing five or six persons, though it is only intended for a single person, bathing in common not being the practice at

Schlangenbad. The bather, consequently, is not obliged to lie down in water about two feet deep, but has ample space to play or move about, the water being admitted in large quantity, so as to rise nearly breast high; the temperature can also be increased by the bather at pleasure, by admitting more warm water; though some persons, in the height of summer, prefer bathing in the water at its natural temperature, about 22 degrees Reaumur.

The water has been used remedially since 1694: The springs rise at the foot of the Bärstadter Kopf—one of the highest hills of this part of the Taunus chain; they are eight in number, three rising immediately behind the old, and three behind the new bath-house, are received into vaulted reservoirs which supply the baths. The fountain which flows before the façade of the old establishment, and serves for drinking, is supplied by the Rohrbrunnen. The eighth spring—the Schachtbrunnen—rises also within the new establishment; its temperature is somewhat higher than the others, and it contains a small quantity more of saline substance.

From its chemical composition the water may rank with the alkaline thermal springs; a pint contains about six grains of solid substance, being double the quantity contained in the same proportion of the Wildbad water; one half, or three grains, being carbonate of soda, and is very analogous to that of Neris in France. It contains but a small proportion of carbonic acid gas, not more than a cubic inch and a half to the pint, which, however,

is more than in the water of Baden. Medicinally considered, it may be applied in most of the cases where a soothing effect is required; some rheumatic and neuralgic affections, with the character of irritability, would derive great advantage from a course of these baths.

Baths of common warm water, it is well known, are not suited to rheumatic cases, inasmuch as they tend to debilitate the system, and diminish the vital energies of the skin, rendering it more susceptible to the influence of atmospheric vicissitudes; whereas, baths of thermal waters, containing even less saline substance than Schlangenbad, are found by experience to have a contrary effect. A congestive state of internal organs, with deficient circulation of the capillaries of the skin, in weakly and delicate persons, would be likely to be relieved by these baths; more especially, when the lungs or air-passages are implicated, and a gaseous water, more strongly impregnated with saline substance, as Ems, could not be borne. In such a case, the internal administration of a water of a different kind, as Weilbach or Selters, might be advantageously combined with the baths. Schlangenbad ranks high as a bath for the relief of nervous affections of a spasmodic nature. Hufeland, who is considered a high authority on the subject of mineral waters, says, in speaking of Schlangenbad, "Its operation is softening, purifying, and sedative, allaying irritability. I know no bath so proper for all kinds of nervous affections, especially in females unable to bear medicines, or mineral

waters in general ; and where the chief indication is to diminish morbid irritability and convulsion. In such cases is Schlangenbad a true, and often an only means of strengthening the nerves, while Prymont and Driburg would often fail." He likewise observes, with respect to its restorative properties in persons advanced in life, "I know of no bath so much fitted to preserve the character of youth, and retard that of old age ; and this I know from experience, that its yearly use gives to an old man cheerfulness, greater pliability of limbs, and increased vigour."

A bath of this water, like others of the same class, does, in fact, impart softness to the skin, with a pleasurable sensation while it lasts, and a feeling of *bien-être* for the rest of the day. The worthy Dr. Fenner says, in his flowery style, "Vous sortir des eaux de Schlangenbad rajeuni comme un phenix ; la jeunesse y devient plus belle, plus brillante, et l'âge y trouve une nouvelle vigueur," which is not so figurative a language as many might suppose, as is testified by the improved appearance of many young persons, and the increased activity of older ones, who have gone through a course of these baths.

The resident physician, Dr. Bertrand, remarks, with reference to the remedial applicability of Schlangenbad, "The baths possess a calming action upon the nervous system in general ; they allay abnormal states of irritation, and thus produce a more harmonious condition of the nervous economy : hence many patients feel their move-

ments much lighter and easier after taking a certain number of baths. It is not uncommon to see persons whose nervous system is affected, drag themselves with difficulty to the bath at the beginning of the course, and soon after find themselves in a state to undertake tolerably long walks, and even to ascend the neighbouring heights."

The waters of Schlangenbad may, then, be considered as an efficient means for regulating the functions of the skin, and a specific for calming the nervous and vascular systems ; they ameliorate the crasis of the blood ; increase the natural secretions ; and, lastly, impart to the sphere of vegetative life a more decided character of health. These results take place in so mild a manner that Osann might with reason say of these waters that "there does not exist, at least in Germany, any other bath which in this respect can be compared with Schlangenbad."* In some instances, however, which have fallen under my observation, even the baths of Schlangenbad have proved exciting, even when not taken at a high temperature, and have increased the existing nervous irritability.

Besides the cases already mentioned, a course of these baths is more particularly indicated in disorders of the cutaneous functions, arising from neglecting the use of baths ; and accompanied with dryness of the surface, or morbid irritability ; in prurigo, lichen, and some of the more serious forms of skin disease where a sedative action is

* *Les Eaux Minerales du Duché de Nassau.*

required, and the use of more powerful waters might aggravate the symptoms; in cases of painful or difficult menstruation, arising from visceral congestion or a state of exalted nervous excitability, Dr. Bertrand speaks highly of the effects of the Schlangenbad baths in relieving pulmonary congestion, especially when accompanied by incipient tubercles of the lungs, in the early stage of consumption.

The Schlangenbad baths, either alone or combined with the internal use of a chalybeate or other mineral spring, according to circumstances, would be an excellent restorative applicable to persons whose general health is disordered without any definite local complaint; as is frequently seen in those whose minds are affected by the anxieties attendant on commercial or professional pursuits, and also in those who have been engaged during several months in the routine of metropolitan dissipation. They are likewise frequently useful as a precursory measure to the employment of more strongly-mineralised baths, as also in allaying the excitation which these latter occasionally produce. With many elderly persons whose skin is dry and rough, and who complain of stiffness of the limbs, exciting waters would often disagree; such persons, as may be inferred from what has been already said, would frequently find their inconveniences removed, and their general health improved, by a short residence at Schlangenbad. These baths are contra-indicated where there exists a state of general relaxation of the system, of

torpor of the visceral functions, mucous discharges arising from want of tone, prolapsus, and in impoverished conditions of the blood.

Drinking whey is advantageously combined, in many instances, with the use of the Schlangenbad baths. Goats are driven in to be milked, and the whey is drank on the terrace in the morning. It allays nervous and vascular excitation, and is a good deal used in cases of affections of the respiratory apparatus, complaints of the digestive organs, attended with irritability, and in eruptions of the skin arising from stomach disorder or a vitiated state of the blood.

EMS.

THE road from Schwalbach is hilly as far as Nassau—a pretty hamlet delightfully situate on the Lahn, which is crossed by a neat suspension-bridge. The most prominent and interesting feature in the scene is, however, formed by the ruins of the castle on the hill overlooking the village; the surrounding territory having been the original patrimony of the duke's ancestors, whence the duchy derives its name. From Nassau the road skirts the bank of the river, winding between well-wooded and cultivated hills.

Ems is built, for the most part, on the right bank of the Lahn, at the foot of a range of steep hills, and is distant about an hour and a half's drive from Coblenz, whence the high road passes through it to Schwalbach and Wiesbaden. Its position is striking and beautiful, and the adjacent country is highly interesting, especially along the banks of the Lahn, either following the stream to its junction with the Rhine, or ascending in the opposite direction beyond Nassau, to Arnstein, Geilnau, and Fachingen.

The principal edifices of Ems are the Curhaus, a large, irregularly-built structure of considerable antiquity, divided into compartments, and containing numerous rooms for lodging visitors, a public saloon for dining, &c., and the baths.

The ground floor consists of a vaulted area, serving for the morning promenade, and surrounded by stands for the sale of various articles; near the centre the water of the principal springs is distributed. Across the road in the public garden, of but circumscribed extent, where the band plays in the morning and evening, is the new Cursaal, erected a few years ago, with spacious ball-room and rooms for play and refreshment. The further extremity of the promenade is terminated by the lodging and bathing-house of the Four Towers—a large isolated building, surrounded by a garden, which, with its turret at each angle, forms a striking object in the picture of Ems. This establishment belongs to the proprietor of the Englischen Hof, where the best accommodation is found. The Hotels de Russie and Four Seasons likewise hold the first rank. On the opposite side of the river (connected with a small bridge of boats), a street of houses and some hotels (Panorama, Victoria, &c.) have been erected of late years. This position is cooler, receiving less of the sun's rays than the larger portion of the town.

Ems is not a very eligible place of summer residence for those who do not require to use its waters; though during two months of the year (July and August) it is thronged with visitors from different countries. From the extreme narrowness of the valley, and comparative deficiency of free ventilation, the heat and oppressive nature of the atmosphere are, in the height of the season, at

times excessive, producing general relaxation, languor, and lassitude in healthy persons, and frequently aggravating the condition of invalids. The town is, moreover, but indifferently provided with shade; while the hills on either side are so steep as to render their ascent fatiguing to pedestrians. On this account numerous well-conditioned donkeys are always in readiness for excursions, and afford the best means by which weakly persons can take exercise on the hills where the air is invigorating. Patients with whom the heat would disagree, but to whose cases the waters might be applicable, would therefore do well to repair to Ems in June, or at the end of August, though the months of September and October are objectionable on account of the great difference of temperature between the middle of the day and the mornings and evenings, the sun rising late and setting early behind the hills, as also on account of the fog and humidity which arises from the river. This disadvantage is admitted by one of the local practitioners, Dr. Ibell, who, after speaking of the sheltered position of Ems from cold winds, and the general mildness of the winter, remarks—"But this smiling picture has its shady side; the woody heights which surround Ems on all sides have the sad privilege of attracting the vapours of the atmosphere, and, as in all narrow valleys, the banks of the Lahn are, especially in autumn, liable to be enveloped in a thick fog during the first hours of the day."*

* Les Eaux Thermalea d'Ems.

The waters of Ems were known to and used by the ancient Romans, whom it appears from the remains of fortifications and tombs, and from the coins and medals found in the neighbourhood, had established one of their principal stations at this spot. The numerous mineral springs arise from the base of the steep mountain Baderberg, immediately behind the Curhaus; on both banks of the Lahin, as also in the bed of the river, gas bubbles being constantly seen escaping from the surface of the water opposite the Cursaal. Eighteen of these have been examined and analysed, their temperature varies from 18 to 44 (Reau.); they are mostly used for baths, three being principally employed for drinking, viz., the Kesselbrunnen, the Kranchenbrunnen, and, more recently, the Fürstenbrunnen, to these has lately been added the Neubrunnen. Carbonate of soda is the predominating ingredient in these waters; the muriate of soda exists also in no inconsiderable quantity, as will be seen from the analysis. The springs are the most efficient alkaline thermals in Germany, and, both as respects temperature and the nature of their composition, resemble those of Vichy, which have likewise a range of temperature varying from 18 to 44 deg. There is, however, a great difference in the amount of the principal mineralising ingredient, the bi-carbonate of soda, which is more than double in some of the Vichy springs. The analogy is closer between the springs of Ems, and the less-known ones of St. Nectaire in Auvergne, the temperature of which ranges from 20 to 31 deg., and which con-

tain about twenty-four grains of carbonate of soda, eighteen of muriate of soda, with thirteen cubic inches of carbonic acid gas to the pint of water. Teplitz, which belongs to this class of waters, is, on the other hand, a more exclusively alkaline water, containing little else than carbonate of soda, with but a small portion of saline and gaseous constituents as compared with the Ems waters.

The action of the water, internally taken, is essentially alterative, diminishing the crasis of the blood, improving the quality of the secretions of the alimentary canal, and the kidneys, in most instances without any material increase in their quantity. Indeed, as respects the state of the bowels, the reverse is not unfrequently the case, and it sometimes becomes necessary to have recourse to medicine. A slight degree of perspiration is not unfrequently produced, especially when the internal administration of the water is combined with baths; as a considerable portion of the gas escapes when the water is employed in the form of bath, it does not occasion the same stimulating effect as other baths more strongly impregnated with saline and gaseous substance; hence, while determining to the surface, and consequently increasing the functional activity of the skin, thereby relieving congested states of the mucous membranes or parenchymatous viscera, it has generally, at the same time, a sedative operation on the nervous system, allaying morbid irritability, or undue vascular excitation. In certain individuals, however, the baths sometimes produce

a powerfully-exciting effect, and could not be continued without danger of aggravating the disorders under which they labour; this sometimes arises from their being taken at a higher temperature than is suited to the peculiar idiosyncrasy or constitution of the individual, or to their being too long continued. The different proportions of the mineralising substance of the springs of Ems, and the difference of their temperature, afford the practitioner a wider sphere for their employment, and enable him the better to adapt their administration to particular conditions and constitutions; the Kesselbrunnen being better suited to certain cases than the more gaseous and cooler Kranchenbrunnen, or the Fürstenquelle, and *vice versa*. The latter spring, on account of its lower temperature and smaller proportion of gas, is milder in its action, and is generally prescribed in cases where the other springs would disagree. With respect to the special adaptation of these springs a great variety of complaints are enumerated by the local practitioners; though to several of these other thermal springs might be no less applicable. Thus the Ems waters, like most other warm springs, have been much recommended in gout and rheumatism; but in most cases of the more fixed and chronic forms of these complaints, especially in elderly persons, I should prefer a spring of a different kind. In the milder and more erratic forms, especially in young subjects, and co-existing with much nervous irritability, the springs of Ems or Teplitz would be preferable.

Dr. Ibell remarks, with reference to the cases of gout in which these waters are calculated to be of service, " Certain patients, especially if they have pursued an arduous career—if they have much exerted at the same time the mind and the body, sometimes present great exaltation of the sensibility, combined with a general prostration of strength; the whole organism is in an excessive state of irritability. In these subjects the gout does not localise itself, nor manifest itself in a critical manner. The depression of the vital powers does not then admit of our having recourse to active or energetic means, while the nervous erethism excludes the employment of tonics. In any similar condition the well-directed administration of the Ems springs, internally and externally, produces the most advantageous results. Whether these results be owing to chemical actions, to vital reactions, or to a modification in the plasticity of the fluids and textures of the body, it is certain that the Ems waters cure some forms of gout, and that the patients return home, if not radically cured, at least greatly relieved. The same may be said of certain forms of rheumatic affection."

There is little doubt that much of the benefit derived from this and other alkaline waters (especially the more strongly-impregnated ones of Vichy) in cases of gout is owing to the absorption of the principles of the water into the blood, which tends directly to remove its superabundant acidity, which in other subjects evidences itself in a tendency to the formation of gravel and stone, in

which cases this class of waters is no less efficacious, especially when there exists a deranged state of the stomach. In these cases a course of the baths, combined with drinking, is of essential service, not only by determining to the surface and regulating the functions of the skin, but also from the direct action of the alkali, which is known to produce a sedative effect on those organs, and by chemically improving the quality of the blood, to render the urine less irritating to the urinary passages. In some of these cases the Ems baths might be advantageously combined with drinking a cold gaseous water, containing a larger proportion of alkali. The resident practitioners speak highly of the effects of these waters in disorders of the digestive functions, especially when combined with torpor of the liver; and there is no doubt that in many of these cases, accompanied with heartburn, acidity, and other symptoms of a vitiated state of the gastric secretions, their employment is attended with considerable benefit; they are also well adapted to rectify some deranged states of the health (occurring more particularly in women and children), without any particular organ appearing to be the seat of disease, if used at a time of the year when the relaxing effects of the atmosphere would not be likely to counteract their beneficial operation.

Dr. Diel, who was a highly-estimated physician practising at Ems for upwards of thirty years, strongly recommended a course of these waters in congested states of the abdominal circulation, with

its consequences—hemorrhoidal affections, &c. Other thermal and cold waters are, however, very efficacious in this class of cases, as will appear from the perusal of this and my other works on mineral waters. The chief difficulty in these and other instances, where a variety of springs is calculated to render more or less service, consists in discriminating the cases to which particular springs are most applicable.

Dr. Doring, who published a work on Ems,* adds his testimony to the beneficial action of the waters in this class of complaints, and in some measure compares them with the Carlsbad springs, as does also another of the Ems physicians, quoting the phrase of Kreysig, viz., "Ems is a milder Carlsbad."† With the exception of temperature, there is, however, no other point of resemblance between the Ems and the Carlsbad waters; both their composition and *modus operandi* being very different. The Carlsbad water is very exciting and energetic in its action, being mostly productive of sensible effects at the time; sulphate of soda is the predominant ingredient, of which the Ems water scarcely contains a trace. The Carlsbad water, moreover, is almost exclusively taken internally, whereas at Ems bathing constitutes a principal, and, in many instances, the more essential part of the treatment. In fact, I should say that the waters of Ems would be inapplicable, or would be

* Ems, mit seinem Heilquellen, &c.

† Dr. Sprengler's "Effects of the Thermal Waters of Ems."

productive of little or no benefit, in most of the cases to which Carlsbad is particularly adapted; on the other hand, Ems would be productive of advantage in several complaints where Carlsbad would be prejudicial.

It is, however, in diseases of the respiratory organs that Ems has acquired the highest reputation, patients affected with these diseases forming annually a large proportion of its visitors. Hufeland, referring to the effects of the waters in this class of complaints (though his knowledge was restricted to the German springs), remarks, "We know how few mineral springs there are that can be used with safety in disease of the lungs. Patients with these affections are usually prohibited from visiting a mineral spring; here the reverse is the case; and, in my opinion, Ems stands alone with Selters in this respect." Diel also spoke highly of the efficacy of the waters in these cases, and in some varieties of asthma. These recommendations from such high authorities have induced many consumptive patients to flock to Ems, a large proportion of whom were doomed to disappointment, in consequence of the disease being in too advanced a stage, or from the waters and the locality being but little suited to the cases. It is, however, acknowledged by all the physicians, that, in confirmed phthisis, the Ems waters are unsuitable; and a more just appreciation of their action in cases of this kind exists at the present day, when the knowledge of the properties of the most frequented springs is more generally diffused.

among the profession and the public ; and, in most cases, where there exists a probability of permanent benefit being obtained, I should consider a sojourn at Ems during the summer months as more likely to be prejudicial than advantageous. Even the local practitioners, who have recently written upon the waters, admit that their virtues have been too highly extolled in pulmonary diseases. Thus, Dr. Ibell remarks, "Ems is perfectly indicated in chronic catarrhs of the air passages. Some surprising cures of this kind have procured for Ems the reputation of a panacea for all consumptions, and especially for pulmonary consumption. Some have too greatly exaggerated, others have too much depreciated the waters. The numerous unsuccessful results in cases already beyond the resources of art, should not lead to an unjust estimation of the value of the means which, employed methodically, and at a fit time, are calculated to be of the greatest service in chronic affections of the chest. So long as there does not exist in the lungs depositions of tubercles producing and keeping up a state of irritation, and so long as the vascular system presents no febrile erythema, and when the disease is not owing to any particular dyscrasy (as syphilis or scrofula), then Ems is useful, I do not say always but most frequently. With respect to tuberculisation in general, and especially pulmonary tuberculisation, judging from my own experience, I consider that our springs are not suited to these organic alterations. The vital reactions to which they give rise, especially the excitation of the

muscular (vascular?) system which ensues upon their use, only admit of their gradual employment, beginning by small doses. This is the only way in which they can be borne in states of irritability of the system." Thus the Ems waters can only be considered as calculated to render material service in cases where there exists a predisposition to pulmonary tuberculisation, or where tubercles exist in the latent state; and, even of these cases, a large proportion would derive equal, if not more advantage from the use of mineral waters of a different character, and from the more invigorating atmosphere of a different locality. Dr. Diel, as also Dr. Ibell, express themselves favourably with respect to Ems as a winter abode for patients with pulmonary disease. The former author speaks of patients going to Mont d'Or and to Bath, to use the waters in the winter. If, however, he were acquainted with these places, he would be aware that Mont d'Or is deserted except during the season; and if visitors go to Bath in the winter, scarcely any, and probably none suffering from pulmonary affections, go there exclusively for the waters. Ems, in fact, offers no inducement either in point of locality or climate for any one to pass the winter there; and it is altogether destitute of resources at this season for mental occupation or recreation. It is, however, a too prevailing error among watering-place practitioners to exaggerate the advantages of their respective localities. On the occasion of a former bath-physician having too universally extolled the Ems waters, Dr.

Wetzlar remarked in his work on mineral waters —“Thilenius calls on the unbeliever, and bids him come and see. I have come and have seen what I have seen in every other bath, *viz.*, that some of the sick were cured or relieved, and others left the place uncured and unrelieved. I saw some who still had their gouty and rheumatic pains when they left. I saw other patients arrive with hoarseness, who, when they went away, could not speak a loud word, and others, who, when they left, coughed and breathed as badly as when they came.”* Dr. Sprengler remarks, with respect to the effects of the Ems waters in consumptive cases —“All the cures hitherto effected at Ems may be comprehended under the rubric of chronic catarrh; only chronic catarrhs are curable by these waters. Protracted or neglected acute catarrhs without dyscrasic basis, or change of structure, allow of a decidedly favourable prognosis. But if the pathic deposits should be the cause of the catarrhal irritation of the respiratory mucous membrane, the prognosis will be less auspicious. When, however, the pathic deposits have ceased, and a chronic catarrh remains behind as an independent disease, in which the patient continues in the same sickly state as in his former complaint—in such cases Ems will prove beneficial in curing, not the primary malady, but the secondary one, which, by duration and intensity, had become independent; and as, on the one hand, the pathic product continually gives rise

* Über Gesundbrunnen und Heilbäder.

to renewed catarrhs, so, on the other, the long duration of the catarrh occasions fresh deposits of pathological products, which, according to the law of analogous formation, soon assume the character of the first exudation. If we succeed in curing the catarrh, we put a stop to the previous pathological process—for instance, tubercles. Thus, in Ems, it is not the tubercles that we cure, but the chronic catarrh, the exciting cause, the dangerous attendant and successor of tuberculosis."

It has, however, been demonstrated, by the researches of both French and English pathologists, that bronchitis or catarrhal affections of the mucous membranes of the air-passages does not produce the tuberculous deposit, which arises from a vitiated condition of the blood, and that the co-existing bronchial irritation is but the effect of the presence of the morbid product in the lungs, though when existing in any considerable degree, or permanently, it accelerates the course of the malady. To combat the catarrhal affection is, therefore, to leave its cause as operative as before; and though, by this means, temporary ameliorations may not unfrequently be obtained, at the most favourable season of the year, no lasting benefit can be expected, and the symptoms would, in the great majority of instances, recur sooner or later, when patients are subjected to unfavourable atmospheric or other influences at other periods. The primary object of the physician in consumptive cases should be to rectify the abnormal condition of the blood, which is not likely to be effected

in the majority of cases by drinking or bathing in the Ems waters, or by patients sojourning during the summer months in the oppressive atmosphere of its valley. Having, in another work, entered fully into the consideration of this subject, it is unnecessary that I should enlarge upon it in this place.*

Dr. Sprengler has a chapter on the advantages of Ems in emphysema, or abnormal distension of the air-cells, which, in itself, is not a primary disease, but a consequence, in most cases, of long-continued bronchial irritation in debilitated or elderly subjects, and the use of an alkaline thermal water, by improving the condition of the membrane, may indirectly relieve the accompanying emphysema. Dr. Sprengler adds: "An additional requirement is a supply of pure, dry air, unmixed with noxious matters; a third object is to augment artificially the contraction of the walls of the cells of the lungs, for which purpose the *exciting air of a mountainous country* is peculiarly adapted. All these indications are answered by the soda-thermals of our picturesque neighbourhood, where the air is pure, stormy weather almost unknown, and where sudden changes of temperature never occur."

From what has been already said, it will appear that Ems is but little calculated to fulfil this latter indication; and with respect to chronic bronchial and laryngeal affections in general, I am of opinion

* "On the Influence of Climate on Tuberculous Disease."—(A Prize Essay.)

that, though Ems may be advisable in many of the cases marked by the characters of excitability, and increased vascular action ; yet, in the more torpid forms of these complaints occurring in lymphatic or scrofulous subjects, or in old persons, other waters and situations would often be preferable to those of Ems. In many affections of the respiratory apparatus, the inhalation of the vapour of the water is of material service as a palliative measure. A vaporarium has, I believe, lately been added to the baths at the Curhans, for the purposes of general or local vapour baths, and inhalation.

Dr. Doring, as well as some other local practitioners, recommend the Ems waters in scrofulous diseases, and in many cases of this disease, I should say that when not employed in the hot months they are likely to be productive of great amelioration, especially in children of a florid habit, with enlarged glands of the mescutery, of the neck, &c., the water being drank alone, or with milk, and its internal use being combined or not with bathing, according as circumstances may indicate. In scrofulous cases, Ems is also often serviceable as a preliminary means to the employment of a more tonic medication, tonics being very often indicated for these patients, who, however, are frequently unable to bear them without the previous use of remedies of a solvent, or sedative, or mildly exciting kind.

In several nervous complaints to which women are more particularly liable, especially when marked

by the character of general or local irritability, as hysteria and other spasmoid disorders, a course of the Ems baths and waters prove eminently beneficial, both from their sedative and alterative qualities. Dysmenorrhœa and amenorrhœa, when not depending upon a relaxed state of the system, but arising from undue excitation, irregular circulation and congestion, are likewise disorders to which these waters are applicable, as also to some cases of hypertrophy of the uterus. Respecting this latter disease, Dr. Sprengler remarks—"There is no curative agent that deserves to be put into comparison with the natural *douche* at Ems, especially when united with dysmenorrhœa or amenorrhœa. No other remedy is capable of softening the indurated texture to the same degree within the same period of time; the more torpid the individual the more considerable the indication, the more obstinate the dysmenorrhœa or amenorrhœa, the higher must be the degree of warmth, the stronger the jet employed." Of the neuralgic form of dysmenorrhœa, or uterine colic, he observes—"Relief from pain, and a feeling of ease, are a general consequence of the application of the *douche*, so that patients willingly submit themselves to its employment, and themselves require a repetition."

The *douche* spring—Bubenquelle—(*source des garçons*), is a natural jet of water, rising in an enclosed basin through a small metallic tube to the height of three feet. It is employed in cases where the *douche ascendante* is indicated, especially

in complaints of the female generative organs, and it has acquired a reputation for the removal of sterility, though there is reason to believe that much harm has resulted from its abuse in these cases. Sterility arises from a variety of causes, some of a general or local nature, connected with the state of the health or with functional derangement—others of a purely physical kind; and these causes require to be investigated before the remedy applicable to the particular cases can be ascertained with any probability of success. Where there exists dysmenorrhœa, or high nervous irritability, the Ems baths, by their tranquillising effects on the nervous system, and their general alterative properties, tend to restore the disturbed equilibrium between the vital state of the uterus and that of the system in general; and in this way they may conduce to remove sterility, which object the local stimulation of the *douche* doubtless promotes in some cases. Dr. Ibell warns practitioners and patients against the too indiscriminate use of the *douche ascendante*. “The Bubenquelle,” he observes, “to which surprising virtues have been ascribed, differs from the other springs of Ems only in the circumstance that a stronger natural pressure causes its water to be emitted a few feet higher.

“On account of its exciting action, the *douche* should be recommended with caution. This spring has been much praised as a remedy for sterility, and every year we see its improper and immoderate use not only prove ineffectual, but also give

rise to serious consequences. It would be advisable that this spring be employed only on the official prescription of a physician."

Among the other complaints in which the local practitioners speak favourably of the Ems waters, are *enrouement*, or weakness of voice, with hoarseness, arising from chronic irritation and enlargement of the mucous membrane of the fauces, to which public speakers, singers, and clergymen are frequently liable; stomach or bowel disorders, with acidity and torpor of the liver. In analogous cases, however, a variety of thermal springs would be no less applicable than those of Ems. Dr. Sprengler ascribes specific virtues to them in the removal of fatty liver; but I confess that I am strongly inclined to doubt his explanation of the effect said to be obtained in this disease. "It is particularly against fatty liver, of so frequent occurrence especially in tuberculosis, that our warm soda springs are of use, not only by their increasing the secretion of bile, but also by the possibility of thereby producing a saponification of the fat in the liver. The waters of Ems, by removing the chronic catarrh of the air-passages, of the stomach, and the adipose infiltration of the parenchyma of the liver in tuberculosis, undoubtedly render essential service in this disease; they improve the constitution and the nutritive process, and thus contribute indirectly to the checking, or even the healing, of tubercles."

In certain chronic cutaneous disorders, where the sedative action of alkaline baths is indicated—

as lichen, prarego, some forms of erzeena, &c.—the Ems waters would often be beneficial.

The springs, though varying in temperature, do not materially differ in the amount and respective proportions of their constituent ingredients. The following, according to Fresenius' analysis in 1851, will show the composition of a pint of the Kesselbrunnen, which has a temperature of 115 deg. Fahr.; that of the Krankenbrunnen being 80 deg., the Fürstenbrunnen 94 deg., and the Neubrunnen 118 deg. :—

		Grains.
Bi-carbonate of Soda		15 $\frac{1}{4}$
Muriate of Soda		7 $\frac{3}{4}$
Bi-carbonate of Lime		1 $\frac{3}{4}$
," Magnesia		1 $\frac{1}{2}$

with minute fractional portions of a grain of sulphate of soda, carbonate of iron, silica, &c. Total, 27 grains; free carbonic acid, 6 $\frac{3}{4}$ grains.

WEILBACH.

THE Weilbach spring rises near the village of the same name in the plain about half way between Mayence and Frankfort, and but a short distance from the railroad. There is on the spot no other accommodation than is afforded by a bath and lodging-house, containing upwards of 100 rooms, dining and assembly saloon, &c., and one or two detached houses. A pleasantly laid-out promenade or garden surrounds the spring, whence is obtained a pleasing view of the Bergstrasse and Taunus mountains, with the intervening plains, through which flow the Rhine and the Main. Soden and Kronthal lie near to Weilbach, and Homburg is about three hours distant.

The water feels soft and unctuous to the touch; its taste is not unpleasant, its odour slightly sulphurous. It is of a low temperature (11 R.), but is warmed up to the required heat for bathing by means of a steam apparatus, so that its properties are but little impaired by the process. A considerable quantity of *cruchons* is sent to other parts of the duchy, and to the large towns in the neighbourhood. By exportation to a distance, the water loses, however, somewhat of its characteristics and virtues, and but little is consequently sent to foreign countries. A course of drinking this water is not unfrequently combined with

bathing at Wiesbaden, Schlangenbad, or elsewhere.

Germany scarcely contains any sulphurous springs of note, except those of Aix-la-Chapelle, Warmbrunn, and Baden, near Vienna; for though the cool springs of Weilbach, Nenndorf, and Eilsen, may be very useful in some cases, they cannot be compared with the others, which have a more energetic action, but approach nearer in their effects to the weaker warm springs of the Pyrenees, as St. Sauveur, the Eaux Chaudes, or still more to those of Moffat, in the north of Britain, which the Weilbach water resembles in temperature, amount of saline and sulphurous impregnation.

A course of this water may, then, be considered applicable with great prospect of advantage in those cases where sulphurous waters are indicated, but where the more exciting ones would not be well borne, and is well adapted to delicate and irritable habits. When taken internally, it affects more especially the mucous membranes of the alimentary canal, air-passages, urinary and uterine apparatus, improving the secretions, without causing in most instances a sensible increase in their quantity, though in some cases the bowels or kidneys are slightly acted upon, and the sensible perspiration is increased; the latter especially, when bathing is combined with the internal use of the water, a miliary eruption being occasionally produced on the surface of the body. Hence the baths are calculated to procure the removal of

some chronic skin diseases of the papular, pustula, or dry scaly varieties, of ulcers and other complaints of a syphilitic origin. The water may be also used with advantage in stomach and liver derangement, with the character of irritability and altered secretion; in uterine congestion, with dysmenorrhœa; in hemorrhoids from languid abdominal circulation, when not combined with a torpid state of the bowels; in enlarged glands of the neck and mesentery in delicate children; in gravel, and irritation of the urinary organs with *catarrhus vesicæ*, &c.; though in some of the above-mentioned states, other mineral waters might be equally applicable or even preferable, which could only be decided by an inquiry into their individual peculiarities.

It is, however, in diseases of the lungs and air-passages that Weilbach enjoys a greater degree of reputation, more than one half of the patients who resort thither being affected with these complaints; and I should consider, from what I know of its effects, that the Weilbach water would render great service in many cases of bronchitis, laryngitis, and incipient tubercular consumption, as it allays irritability, facilitates expectoration, and might often be used when other springs would be too exciting; though many invalids have recourse to it as a last resource, and when the disease is too far advanced to admit hope of permanent relief. In some cases the water is drank mixed with milk. Doctors Thilenius, Wetzlar, and others have spoken favourably of this spring in these cases.

The latest publication is that of Dr. Roth, who likewise praises its efficacy, especially in cases of hemorrhoidal affections, and diseases of the lungs and air-passages, complicated with hemoptysis. This author states, that the water possesses a larger proportion of sulphurous gas than any other of the German springs, a pint containing, according to Jung's analysis, 2,646, and of carbonic acid 5,636 cubic inches; the saline constituents being as follows: carbonate of soda, $4\frac{1}{2}$; carbonate of magnesia, $1\frac{1}{4}$; carbonate of lime, $2\frac{1}{2}$; muriate of soda, 2 grains—with fractional portions of a grain of muriate of magnesia, sulphate of soda, carbonate of strontian, and silex—making a total of 12 grains. Jung's analysis does not differ very materially from Kastner's.

Vapour baths, and the inhalation of the vapour, are not unfrequently recommended in appropriate cases. The mineralised deposit, which contains a large proportion of the muriate of soda, is likewise sometimes added to the baths.*

* Notice sur les Eaux de Weilbach. 1854.

SODEN

Is a neat village containing about 1,000 inhabitants, situated in a beautiful part of the country at the base of the Taunus hills, immediately beneath the town and ruin of Königstein. It is about a two hours' drive from Homburg, and is connected with the Taunus railroad, at the Höchst station, by a branch line, the transit occupying a quarter of an hour. A handsome Curhaus was erected a few years ago, containing sleeping apartments, a public saloon for *table d'hôte*, concerts, *réunions*, &c.; the adjacent garden is of considerable extent, and is tastily laid out. Good accommodation is likewise obtained at the Frankfurter and Europaeischer Hofs, the Hof von Holland, Hotel Franz, &c.; and many new lodging-houses have been built within the last three or four years along the Königstein-strasse. The two principal springs (No. 6) rise in the garden; several others, which had been previously neglected, have been lately enclosed, and are used for drinking and bathing.

Among the objects of interest in the neighbourhood may be mentioned the Feldberg, and the Alt-könig, the highest of the Taunus hills, the ruins of Falkenstein, Kronberg, and the Kronthal. Except the excursions in the environs, and an occasional concert or public ball, Soden does not possess

much resource for recreation ; it is not a pleasure-bath, though frequently resorted to by Frankforters on holydays. The springs have been used from a very early period for the extraction of salt, but have only been resorted to medicinally within the last twenty-five years, though, from their efficient character, they are annually rising higher in public estimation. They are very numerous, and not only present considerable varieties in the amount of salts and gas which they severally contain, but also as respects the temperature, which ranges in the different springs from 13 deg. to 21 deg. R. Most of them are very gaseous, and some are very rich in salt. No. 1, the Milchbrunnen, which is used for drinking, contains the smallest quantity of muriate of soda (17 grains to the pint). Nos. 2 to 4 are mostly used for baths. No. 6 (Wilhelmsbrunnen), analysed by Liebig, contains as much as 104 grains muriate of soda in a pint of water, together with carbonate of lime 8 grains, and muriate of potass 2½ grains ; it is used for drinking and bathing, producing twice as much water as the other No. 6 (Schwefelquelle), which is less gaseous, and also contains less salt (77 grains) and lime, but, as its name implies, has a sulphurous smell. No. 6c, a drinking spring, yields but a small quantity of water, is cold (12 R.), but is very salt (112 grains to the pint), though less gaseous than the others. No. 7 (Major), contains 94 grains muriate of soda, and 7 carbonate of lime. There are, besides, some springs in private houses used for baths, one

in the meadow near the road (Wiesenbrunnen), containing 94 grains salt, and 8 grains carbonate of lime, which is a good deal employed for drinking, a Sauerbrunnen, or acidulous spring, with a smaller proportion of salts, viz., 51 grains muriate of soda, 3 grains carbonate of lime. No. 19 (Champagnerquelle), bubbles and sparkles very much, its taste, like that of Seltzer water, is piquant and refreshing, and but slightly salt (50 grains muriate of soda, 5 carbonate of lime, to the pint); it rises in a field at a distance from the others.

The preceding notice may suffice to convey a correct idea of the richness and variety of the Soden springs — the minimum of salt in No. 1 being 17 grains, and the maximum in No. 4 (Soolbrunnen) 114. Besides the above-mentioned salts, the springs contain minute portions of carbonate of magnesia, iron, silex, &c., which, together with the gas, modify considerably their action. Some of the springs are very gaseous: thus, No. 3 contains in a pint of water 36 cubic inches of free carbonic acid—No. 6, 40. Fractional portions of bromine and manganese have been discovered in the water by Liebig, but no iodine.*

The action of the water internally taken is solvent and aperient, or diuretic, according to the particular spring and the amount taken. The operation of the baths is powerful and often stimulating; they not unfrequently give rise to an erup-

* Dr. Kolb Die Heilquellen von Soden. 1855.

tion on the skin, and sometimes to determination of blood to the head. Compared with other springs of a somewhat analogous character, those of Soden are less energetic than the salt springs of Kissen-gen, which contain more muriate of soda and gas; and also the sulphate of soda, which is absent in the Soden water. On the other hand, the Kreutznach springs, though containing more muriate of soda than the weaker Soden ones, have a smaller proportion of carbonic acid gas, on which account their action would be less powerful, were it not that the Mutterlauge or lees of the water is generally added to the baths. They are all, however, applicable to the same class of cases, though the difference in amount of the component parts of the Soden springs would enlarge the sphere of their applicability; as, in cases where No. 6 or 7 would have too exciting an operation, No. 1 or 3 might be employed with advantage.

The diseases which waters of this class are most likely to remove are various kinds of scrofulous affections, particularly swellings of the mesenteric glands, or those of the neck, in indolent habits, with torpor of the digestive organs, and a deranged state of the secretions; obstinate rheumatic complaints of long standing; a cachectic or scorbutic condition of the system; relaxation of the mucous membrane of the air-passages, with cough and mucous expectoration, and some inveterate diseases of the skin, without inflammatory complication. Those cases of scrofula, combined with much constitutional irritability or tendency to inflammation,

would be best treated by a course of thermal waters, as Baden, Wiesbaden, or Ems.

Dr. Kolb speaks highly of their effects in cases of torpor of the liver, abdominal plethora with piles, and the tendency to pulmonary diseases in persons of scrofulous habit.

From the sheltered position of the valley, the climate is of a sedative character, and the air somewhat moist.

Dr. Thilenius, in his notice of Soden, remarks that the waters are particularly suited to torpid and lymphatic constitutions; but that they are not adapted to persons of a sanguinary or nervous temperament; they are very efficacious in anemia and chlorosis, where there exists much depression of the vital powers, and an impoverished state of the blood; as also in dysmenorrhœa, amenorrhœa, and chronic uterine hypertrophy. "Experience has shown," he says, "that Nos. 6a, 6b, 18, and 19 are best suited to abdominal affections, whereas 3, 4, and 1 are more useful in chest diseases."*

The Soden waters are largely exported, and are often drank by patients while using the baths at Wiesbaden, Schwalbach, or Ems.

* *Traité des Eaux Minérales du Duché de Nassau.*

KRONTHAL.

THIS beautiful and fertile valley is thickly planted with chesnut and other fruit trees, and is enclosed between gently rising hills, which join themselves on the north and east with the Taunus range. The bath lies at the foot of a hill, on which stands the old town of Kronberg; the picturesque ruins of the castle, seen from a distance, form a striking object in the landscape; and though it has hitherto been principally resorted to by visitors from Frankfort and other places in this part of the country, yet, as its mineral springs may be ranked among the best of their class, there is little doubt that many persons will be induced to give them a trial, in preference to undertaking a long journey to more distant springs of an analogous character. Two large houses have been erected within these last few years for the better accommodation of the visitors, several of whom reside in the town, which is not more than half a mile distant. The Curhaus contains a large saloon, where the *table d'hôte* is held, some very commodious bathing cabinets, and about fifty neatly-furnished apartments. The resident physician has also a large house in which visitors can be lodged.

Two springs are chiefly used—the Trinkquelle or Stahlquelle, and the Wilhelms or Salzquelle, enclosed in 1820. The temperature of the former

is 11 deg., that of the latter 13 deg. The water tastes agreeably cool, acidulous, and chalybeate. Both springs contain a large quantity of gas, which forms bubbles on the surface, so as to resemble water in a state of ebullition. The Wilhelmsquelle contains somewhat more salts, but less iron and gas than the Trinkquelle.*

Judging from their composition, and from a comparison with other mineral springs, I consider that those of Kronthal may rank with the most valuable alterative and tonic waters of Germany. In the amount of muriate of soda the Trinkquelle approaches the Cannstadt spring, which, however, contains but a very minute proportion of iron. It contains about the same quantity of iron as the Ludwigsquelle, at Bocklet, from which it differs in having a few grains less muriate and sulphate of soda, on which account its action would be less aperient and more tonic. The astringent effect of the iron is in great measure neutralised by the large quantity of salts, which, predominating to a great extent in the Ragozzi and Pandur springs at Kissingen, renders their primary action purgative. On this account the Wilhelmsquelle would be more laxative than the Trinkquelle, which also would be more so, and, consequently, in some cases better borne than a chalybeate water, containing but little salt, as Schwalbach; though, where the object is to impregnate the system with iron, it would of course be more speedily effected by the use of the latter.

* 39 grains, of which 27 muriate of soda; carbonic acid gas, 29 cubic inches.

The sensible action of the Kronthal springs, however, seldom affect the bowels, but most usually the kidneys, though not so as to produce inconvenience. They are generally well borne, and after using them for a few days most patients feel themselves refreshed and invigorated. A course of these waters would be most applicable in cases where a tonic and, at the same time, a solvent effect is required, as in general debility, combined with nervous and vascular irritability, frequent palpitations, etc. ; in weakness of stomach and bowels, with deficient or unhealthy secretions ; relaxation of mucous membranes and of their capillary vessels, producing, when those of the air-passages are affected, cough, mucous expectoration, and passive bleeding from the surface ; when the uterine system is implicated, too profuse periodical discharges, leucorrhœa, etc. ; some nervous disorders, as hysterical and hypochondriacal affections, where a tonic medication is required, but where the direct chalybeates would prove too heating. Dr. Kuster availed himself of the richness of the springs in carbonic acid, to erect a small building where baths and *douches* of this gas may be taken, and he speaks highly of their efficiency in cases where a powerfully stimulating effect is required, as in torpor of the system or of the functions of particular parts, some kinds of general and local paralysis, or defective power in the organs of sense.*

* *Traité les Eaux les Duché de Nassau.*

FACHINGEN.

THIS long-known and much-esteemed mineral spring rises close to the village of the same name; but, notwithstanding the beauty of the environs—which equals that of Ems, while the valley is more airy and less hemmed in by steep hills—and the medicinal efficacy of the spring, there are no lodging-houses on the spot, the only building being the residence of the Verwalter, who superintends the bottling and packing of the water. There is little doubt that if there were proper accommodation, the place would be resorted to. Around the house are avenues of poplar and lime trees, which, by a little labour, might be converted into an agreeable promenade.

The water taken into a glass is clear, sparkling, and emits small bubbles of carbonic acid. Its taste is agreeably cool and refreshing, piquant, and alkaline. Many prefer it as a summer beverage, mixed with sugar or wine, to Seltzer water, from which, however, its composition materially differs, inasmuch as a pint contains nearly a grain of iron, as much as 24 grains of bi-carbonate of soda, and 20 cubic inches of free carbonic acid, while there are only four grains of muriate of soda. Hence it stands foremost among the alkaline springs, none of those of Germany, except Bilin, containing so large a quantity of alkaline salt. In this respect

it approaches nearly to Vichy ; from which, however, it differs in temperature, and in containing a larger quantity of iron. It also contains nearly twice as much gas as the Vichy springs, on which account, as also from its low temperature, it is much pleasanter to drink than even the Celestins at Vichy, which is the coolest spring (18 deg. R.) and one of those most generally used for drinking.

The Fachingen water may, therefore, be considered applicable to some of the cases in which the Vichy springs would be recommended ; though these latter are a great deal employed in the form of bath, are more solvent, and hence better calculated to procure the dispersion of swellings or *engorgement* of the abdominal viscera, as the liver, spleen, &c., while Fachingen having a more tonic property, and not being used for bathing, would be better adapted to rectify a faulty state of the mucous membrane of the alimentary canal, with acidity, weak or painful digestion, etc. It is also well suited to the treatment of chronic bronchial and tracheal affections, asthma with copious expectoration, when there is not much constitutional irritability or tendency to inflammation, in which case a spring of a different nature, as Selters or Weilbach, would be preferable.

Several writers on mineral waters, as Thilenius, Ritter, Diel, Hufeland, etc., have spoken highly of the efficacy of the Fachingen water ; the last-named physician terms it “ a powerful and highly-efficient mineral water, in many cases unique in its way.” He further says, “ Its peculiarities consist in its

richness in carbonate of soda, and carbonic acid, and their combination with a not inconsiderable quantity of iron; hence it is a solvent remedy without being astringent and constipating; and is highly serviceable to many hypochondriacal patients who labour under obstructions of the digestive organs, with debility and acidity; a case which so frequently occurs, and in which neither the purely aperient nor strengthening chalybeate waters can be borne." Gouty people may also drink the Fachingen water habitually with advantage; the good effects of alkalies in this disease being well known. It is more adapted to render service in the erratic gout in nervous individuals, than in that kind which occurs habitually at intervals, of a more fixed nature, and combined with deposition of chalky concretions in the joints; in which case the Wiesbaden baths would be more likely to relieve. These baths may sometimes be advantageously combined with drinking the Fachingen water, which may also be administered with benefit to children with enlarged glands, tumid abdomen, debility of digestion and of the muscular system, where a strong saline or a chalybeate spring would produce too much excitement.

But there is another class of cases in which the Fachingen water is calculated to be of great service, viz., gravel and stone in the bladder. Some cases of stone, there is every reason to believe, might be, if not altogether cured, greatly mitigated by mineral waters strongly impregnated with alkali and carbonic acid gas, if reliance may be placed

upon the accounts of the action of the Vichy water upon these foreign bodies; of which the commission appointed by the Académie Royale de Médecine to investigate the subject, gave a favourable report. Dr. Petit, of Vichy, by whom these cases are reported, observes—"What above all tended to the discontinuance of the employment of alkalies (in cases of stone) is, that they were formerly administered in a state of purity or only slightly carbonated, and were thus frequently very irritating and even dangerous; they could consequently only be given in too feeble doses to impart to the urine the degree of alkalinity necessary to produce the desired effect; but by their combination with carbonic acid they are rendered innocuous when perfectly saturated, without losing any of their solvent property; hence they may be employed in much larger doses."*

As in these cases, the principle of the treatment is to maintain the urine and secretions for some time in a state of alkalinity, the object would be materially facilitated by the baths of alkaline water, which would obviate the necessity of taking such large doses internally, and I have little doubt that much more might be done by these means in cases of stone than has hitherto been supposed possible.

* See "Vichy," in the "Baths of France," &c.

SELTERS.

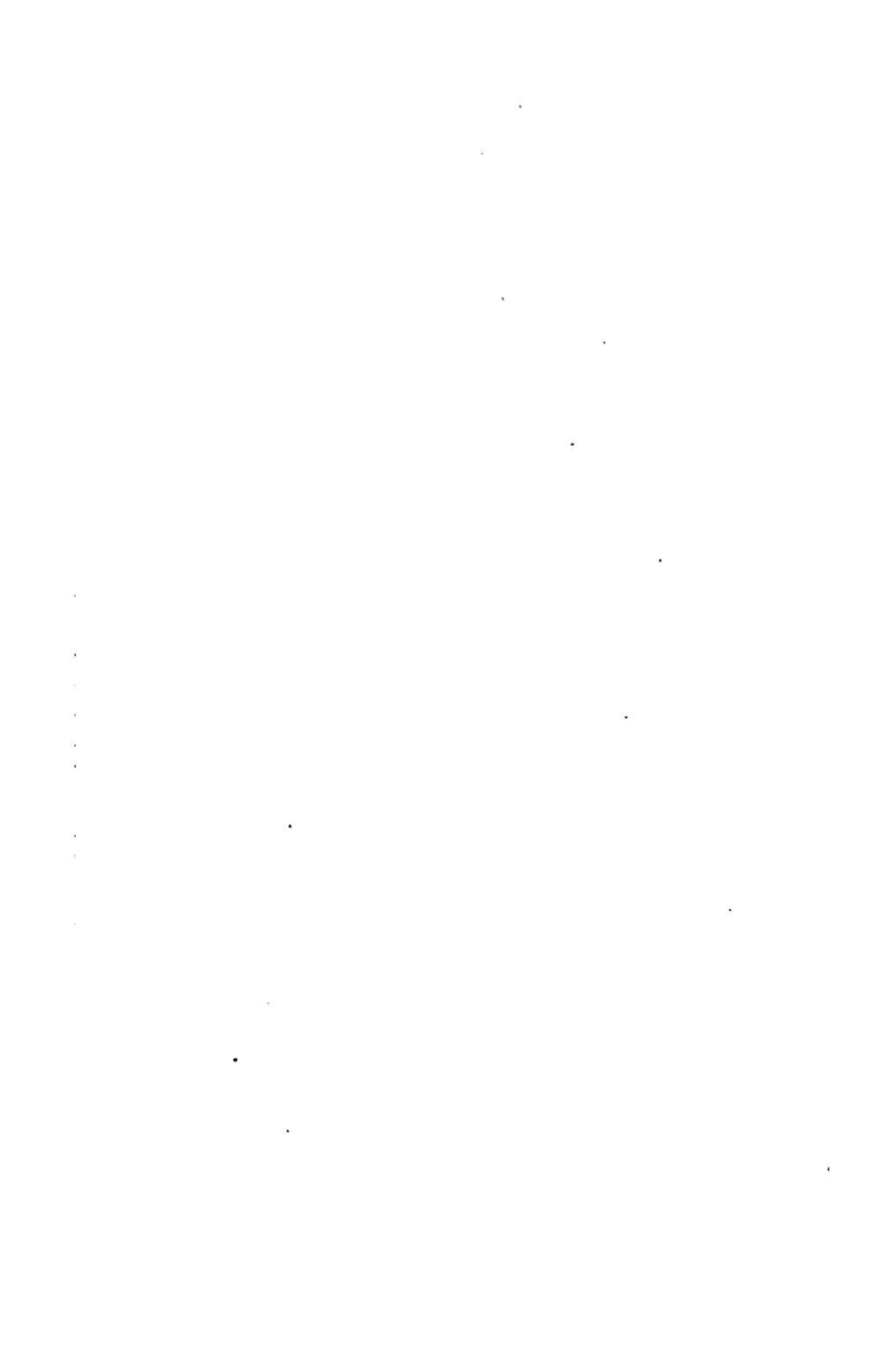
THE spring of Nieder-Selters, in the north of Nassau, though not resorted to by invalids, supplies many parts of the globe with the highly agreeable beverage known by the name of Seltzer water, of which about a million and a half of bottles are annually used in the duchy and exported to other countries. The water is also very efficacious in several diseases, and is used extensively upon the Continent as a remedial means. It contains as much as 36 grains of saline substance to the pint, of which 16 are muriate and 15 carbonate of soda, and 15 cubic inches of carbonic acid gas, with which it is intimately combined; in this respect it has the advantage over the Geilnau spring, which possesses a larger quantity of gas, but no muriate of soda and less of the carbonate. There is but a very minute portion of iron, and even this is precipitated in the bottled water, which is decomposed by the smallest quantity of vegetable substance, as a piece of straw getting into the bottle, sulphuretted hydrogen being thereby produced. It is easily digested, and seldom occasions congestion or determination of blood to particular organs, like the majority of strongly-impregnated mineral waters, on which account it is often advantageously employed in some febrile and inflammatory affections. Its action is, in general,

cooling, exhilarating, and alterative, improving vivified secretions of the mucous membranes, giving tone to their glands, and promoting absorption. It may generally be taken without risk by robust and plethoric individuals, and is of great service in cases of torpor of the vascular and glandular systems, stomach derangement, with acidity and constipation, tendency to gout in full habits, and scrofulous complaints. "But," says Hufeland, "it is in chronic diseases of the lungs, and especially in pulmonary phthisis, that the water is of the greatest efficacy. In this disease, when other powerful remedies produce no good effect, Seltzer water has often an extraordinary efficiency. Where there exists relaxation of the mucous membrane, by the exciting property peculiar to it, the energy of the relaxed vessels and mucous glands becomes re-established; in the tubercular kind it resolves obstructions without exciting inflammatory irritation; and where inflammatory complication exists, it regulates the abnormal secretion, and often prevents suppuration. I say all this after great experience, and could quote many cases of success. Seltzer water seems to contain the due admixture of principles required in this disease—viz., a slightly stimulating action, and the faculty of producing an increase in the power of the lungs and glands without causing determination of blood to them, or accelerating the circulation through the body. It produces the best effects in this disease when mixed with a third part of warm milk, especially asses' milk." Not-

withstanding this high eulogy, patients laboring under phthisis, and their friends, must not expect, when the disease is fully developed, that Seitzer water, any more than other remedies, can be productive of permanent benefit; though, in the early stage its use may tend to check the disposition to the formation of tubercle.

Vetter speaks highly of the advantages of Seitzer water given in small and frequently-repeated doses, after proper evacuations, in the fevers usually prevalent in summer, and complicated with erythema of the upper part of the alimentary canal, or what are commonly called gastric fevers, in which vomiting is so often a distressing symptom; though, when acute inflammation is present it would not be advisable to give it without being diluted with water. I have had several opportunities of witnessing the beneficial effects of this water in cases of fever, and in diseases of the respiratory organs.

The Seitzer water would also be serviceable in many cases of irritation of the urinary organs, or tendency to the formation of stone or gravel, chronic inflammation of the mucous membrane of the bladder with ropy mucus secretion. It is frequently added to the Rhenish wines to destroy their acidity, and, mixed with sugar, forms a very refreshing drink in summer. When employed medicinally, a large quantity, not less than a bottle a day, is requisite.



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